U.S. DEPARTMENT OF COMMERCE
National Technical Information Service

PB-281 229

Model State Information System Training Program. Volume IV. Slide/Cassette Workbook for Selection Process

Cincinnati Univ, Ohio Southwestern Ohio Regional Computer Ctr

Prepared for

Environmental Protection Agency, Washington, D C

Jun 77

PB 281 229

Model State Information System Training Program

Volume IV

Slide/Cassette Workbook

For

SELECTION PROCESS

Prepared for the

U.S. Environmental Protection Agency
Office of Water Supply
Washington, D.C. 20460
under GSA Contract No. GS-05S-10458
Task Assignment OWS-77-01

by the
SouthWestern Ohio Regional Computer Center
Cincinnati, Ohio
June, 1977

REPRODUCED BY
NATIONAL TECHNICAL
INFORMATION SERVICE
U. S. DEPARTMENT OF COMMERCE
SPRINGFIELD, VA. 22161

BIBLIOGRAPHIC DATA SHEET

1. Report No. EPA 440/6-77-028-12

2.

3. Recipient's Accession No. PB281229

4. Title and Subtitle
MSIS-Volume IV: Selection Process Workbook

5. Report Date
June 1977

6.

7. Author(s)
Southwestern Ohio Regional Computer Center

8. Performing Organization Rept. No.

9. Performing Organization Name and Address
Southwestern Ohio Regional Computer Center
3333 Vine Street
Cincinnati, OH 45220

10. Project/Task/Work Unit No.
OWS-77-01

11. Contract/Grant No.
GSA Contract #
GS-055-10458

12. Sponsoring Organization Name and Address
U. S. Environmental Protection Agency
Office of Drinking Water
401 M Street S.W.
Washington, D.C. 20460

13. Type of Report & Period Covered

14.

15. Supplementary Notes

16. Abstracts

This slide/cassette course on the Model State Information System (MSIS) is one of four prepared by the SouthWestern Ohio Regional Computer Center, for the Office of Drinking Water, U.S. Environmental Protection Agency, Washington, D.C.

The selection Process slide/cassette course has a corresponding workbook designed to aid persons learning about MSIS. This workbook can be used in conjunction with the MSIS slide/cassette Training Program or it can be used advantageously by itself as a learning or reference tool.

17. Key Words and Document Analysis. 17a. Descriptors

17b. Identifiers/Open-Ended Terms

17c. COSATI Field/Group

18. Availability Statement
REALEASE UNLIMITED

19. Security Class (This Report)
UNCLASSIFIED

20. Security Class (This Page
UNCLASSIFIED

21. No. of Pages
178

22. Price
A09 - A01

ACKNOWLEDGEMENTS

No major effort may conclude without proper acknowledgement of help received. During the seven months required for gestation and birth of the six MSIS training programs, several individuals rendered indispensable help. Joseph Bagby of the University of Cincinnati's Faculty Resource Center, and Thomas Bartlett and Daun Richards of SWORCC bore the major burdens of creativity and revision. They were aided especially by Janis Cowperthwaite and Thomas Manz of SWORCC, who reviewed content for technical accuracy. Office of Water Supply personnel suffered many questions, especially Arnold Kuzmack, Fredrick T. Martin, and Peter Bengtson. Finally, SWORCC's Systems Division Director, John W. Rust, provided urgently needed clerical and moral support. We all thank them all. To those whom we have inadvertently overlooked, our apologies and our thanks.

Ellen G. Miller
Project Manager, OWS-77-01

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INTRODUCTION

This slide/cassette course on the Model State Information System (MSIS) is one of four prepared by the SouthWestern Ohio Regional Computer Center, Cincinnati, Ohio, for the Office of Water Supply, U.S. Environmental Protection Agency, Washington, D.C. The four slide/cassette courses are:

Volume I - MSIS Overview
Volume II - MSIS Subsystems
Volume III - Data Entry
Volume IV - Selection Process

Each slide/cassette course has a corresponding workbook, designed to aid persons learning about MSIS. This workbook can be used in conjunction with the MSIS Slide/Cassette Training Program or it can be used advantageously by itself as a learning or reference tool. Conscientious application of the material contained herein will result in a deeper knowledge of the entire MSIS program.

Before beginning the slide/cassette presentation, please turn to the Instructions for Users and read the directions to facilitate optimum utilization of the slide/cassette teaching device.

NOTES

INSTRUCTIONS TO USER

The design of this Model State Information System (MSIS) Slide/ Cassette Training Program assumes that each viewer has in his possession and will use the workbook which corresponds to the volume indicated by the slide/cassette package. This workbook is intended to serve as a learning aide and, later, as a reference tool. These instructions should be read in order to derive maximum benefit from this workbook.

The Individual Unit Material is a storybook version of all material contained on the slide/cassette presentation. Information contained on the cassette tape is duplicated verbatim in the textual portion of the individual unit material. The corresponding slide is duplicated to allow a visual facsimile of the slide presentation. Therefore, as a reference tool, the entire slide/ cassette presentation can be reviewed in great detail.

The Pre-Test is to be completed prior to using the slide/cassette devices. It is designed to measure the viewer's individual knowledge of MSIS before exposure to the information contained in this presentation. Upon completion of the Pre-Test, the viewer is to turn on the slide projector and accompanying cassette tape player and proceed with the training course.

Bring up the first slide on the screen; then start the recorder.

Instructions concerning the Exercises are contained in both the slide/cassette presentation and the corresponding workbook. The phrase "STOP TAPE...COMPLETE REVIEW/EXERCISES" indicates that it is time to measure the viewer's comprehension of material previously presented. The slide immediately following will refer the viewer to the specific exercise corresponding to the material covered. The exercises are placed in the workbook in their order of occurrance, but the viewer is responsible for matching the number appearing on the screen with that appearing in the upper right-hand corner of the exercise.

The Exercises are designed to be self-evaluating and should be used accordingly. The viewer should turn the slide projector and cassette tape player off, complete the appropriate exercise(s), compare his/her answers to the corresponding answer sheet provided in this workbook, and judge accordingly whether the information was successfully transferred or if it should be reviewed for a more complete understanding.

The Glossary will serve as a quick reference for words unfamiliar to the viewer. Words which have particular reference to the Model State Information System and whose meaning in this context may vary from the common definition are listed in the Glossary. Because the Glossary provides a concise list of terms pertinent to the data processing field and, more specifically, MSIS, it is advisable for the viewer to read through the words and their definitions at some point during the training period. The amount of exposure necessary for a complete understanding of terms will depend upon the viewer's individual previous familiarity with data processing and MSIS terminology.

The Acronym portion of this workbook lists all abbreviations formed by combining initial letters which occur in this course's content. Because the Model State Information System is itself commonly referred to as an acronym (ie., MSIS) it is imperative that the viewer of this slide/cassette program become familiar with and study the abbreviations listed here. They are all explained in detail during the training course, but only by repeated exposure and examination will the trainee recognize the acronyms commonly used in connection with the MSIS.

Extracts from MSIS Documents consist of selected system documentation, relevant Environmental Protection Agency publications, reports generated by system runs, and any other information deemed necessary to aid further understanding and to provide background information on the contents contained in this slide/cassette course presentation.

Upon successful completion of material covered on a slide/cassette tray, the viewer will be informed that the current portion is over by a slide which directs him/her to "CHANGE SLIDE TRAY AND AUDIO CASSETTE". It will be followed by a blank slide. At this time, the viewer will replace the slide tray and corresponding audio cassette tape with the next sequentially designated slide/cassette presentation and continue the training course. The slide/cassette presentation is not complete until the viewer encounters an "END OF VOLUME" slide. At this point, the viewer should turn off the slide projector and audio device, complete the Post-Test referenced during the later portion of the presentation, and compare the Post-Test to the Pre-Test to evaluate the amount of specific knowledge which was obtained during this training presentation.

It is the intention of this MSIS slide/cassette training program not only to impart knowledge of the Model State Information System, but to provide the viewer with an opportunity to practice the knowledge gained, and to refer back to this workbook when using MSIS in daily operations.

Model State Information System

MSIS

Slide--Cassette Training Program

Volume IV

Unit I

INDIVIDUAL UNIT MATERIAL

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Volume IV
Selection Process

INDIVIDUAL UNIT MATERIAL

IV.1

Model State
Information System
(MSIS)
Slide/Cassette
Training Program

This is the last of four volumes comprising the Model State Information System Slide-Cassette Training Program. The Model State Information System, commonly referred to as

IV.2

MSIS

MSIS, is a computer system designed to help the States implement the Safe Drinking Water Act.

IV.3

SouthWestern Ohio

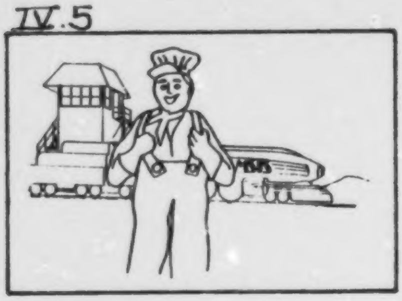
Regional Computer Center
Cincinnati, Ohio

Both the computer system and this accompanying slide-cassette training program were developed by the SouthWestern Ohio Regional Computer Center, or

IV.4

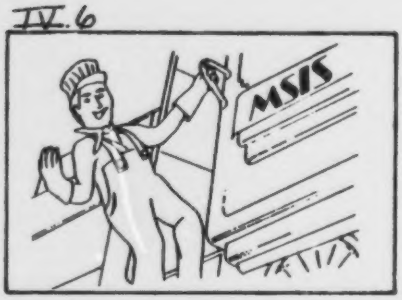
SWORCC, under contract with the Office of Water Supply, Washington, D.C.

IV.5



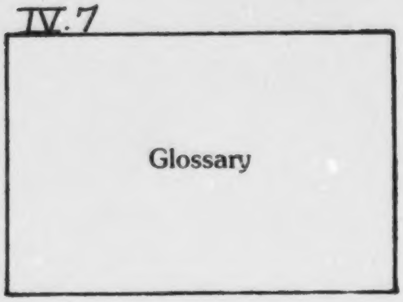
Hi. I'm the conductor of the MSIS train and will be guiding you through this training program.

IV.6



It's my responsibility to keep things "on track" and see that you have a pleasant journey and a good learning experience. Let's begin by talking about the glossary in your workbook.

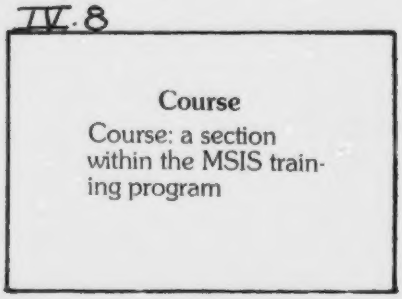
IV.7


Glossary

Commonly used computer terminology, as well as other generally unfamiliar words and abbreviations, are included in this glossary for your convenience.

Two non-data processing terms especially relevent to your understanding of the formal material to be presented are the words "course" and "unit".

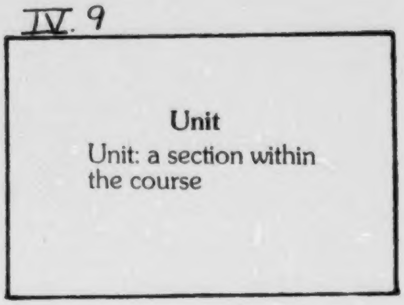
IV.8


Course

Course: a section within the MSIS training program

Volume IV of the MSIS Slide-Cassette Training Program, which you are now viewing, meets this definition of a course.

IV.9



Unit

Unit: a section within the course

This course, Selection Process, contains only one unit. However, the number of units may vary from course to course.

IV.10

If you have completed the pre-test for this volume, you are ready to take up the formal course material. If not, you should complete the pre-test at this time.

IV.11

Volume IV
Selection Process

This last volume of the MSIS Slide-Cassette Training Program explores in great detail what we have chosen to call the "Selection Process". There are questions that the user must ask himself to get output from the computer. First, do I want to run MSIS to get an output report? If so, what subsystem and program do I want to run? And last, what information do I need on my output? All of these decisions are conveyed to the computer with a Processing Option Input Form.

IV.12

Unit 1
Processing Options

Processing Options forms are used to initiate computer programs; to request output reports; to determine the date and period of a report; and, to determine the ordering of information within the report. Our presentation will focus on these areas. The specific goal for Unit 1 is shown here.

IV.13

GOAL

To provide the viewer with an understanding of the selection process and some practical ability in completing the Processing Option Input Forms to produce the desired results.

Note that only the Processing Option Input Forms are covered and that some practice in form completion will take place.

IV.14

Let me clarify our meaning of the words, goals and objectives. As used here, a goal is the end result sought, and is stated in broad general terms. An objective is much more specific and when expressed in behavioral terms can easily be measured to determine progress. If properly stated, the attainment of the behavioral objectives assures that the goal is reached.

IV.15

Behavioral Objectives
Unit I
PROC and SORT Input Forms

- Identify the specific purposes of the entries on given PROC and SORT input forms.
- Choose the best valid entry for each field on the PROC and SORT input forms.

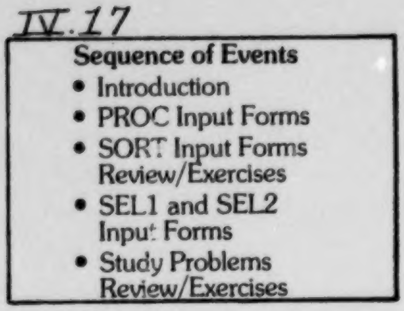
IV.16

Behavioral Objectives
SEL1 and SEL2 Input Forms

- Specify the purpose of each of the entries on given SEL1 and SEL2 input forms.
- Choose the best valid entry for each field on the SEL1 and SEL2 input forms.
- Name the four types of conditions that can be specified on SEL1 and SEL2.
- Complete selected SEL1 and SEL2 input forms.

The behavioral objectives for this fourth volume are shown here. Both the material presented and the review exercises will focus on these objectives.

IV.17

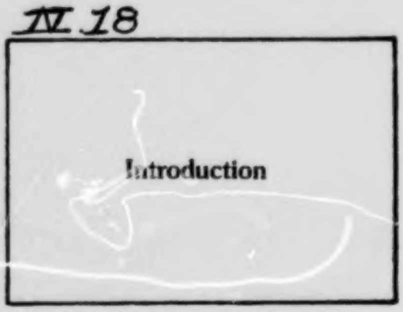


Sequence of Events

- Introduction
- PROC Input Forms
- SORT Input Forms Review/Exercises
- SEL1 and SEL2 Input Forms
- Study Problems Review/Exercises

This slide shows the order in which the contents of this course will be considered.

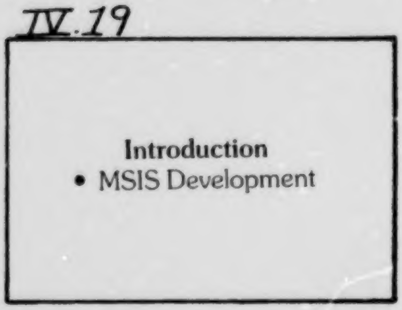
IV.18



Introduction

We will begin our introduction with a brief review of the Model State Information System computer system.

IV.19

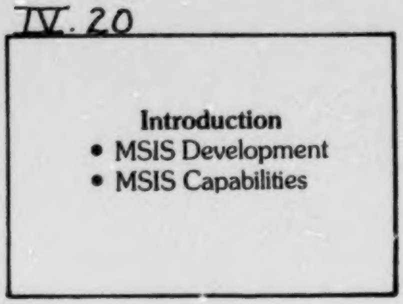


Introduction

- MSIS Development

No doubt you are aware that the Model State Information System was developed to help the States meet the requirements of the national Safe Drinking Water Act of 1974.

IV.20

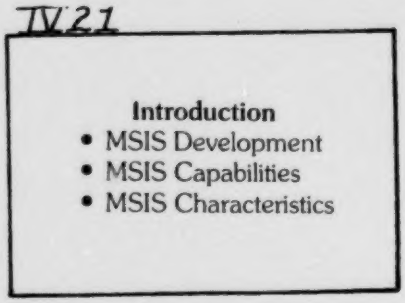


Introduction

- MSIS Development
- MSIS Capabilities

MSIS has two distinct capabilities. First, it maintains records on public water systems. Second, it prepares reports required by the federal regulations.

IV.21

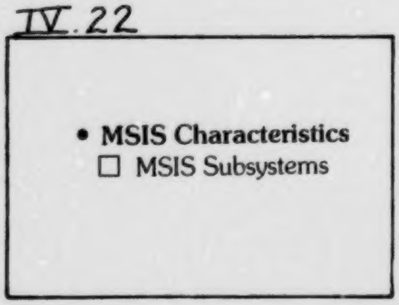


Introduction

- MSIS Development
- MSIS Capabilities
- MSIS Characteristics

MSIS is a decentralized system designed to be installed on the State's own computer facilities. It is a "batch" system; that is, it collects input information until a "batch" is accumulated and then processes it.

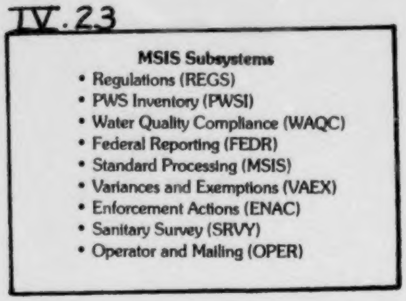
IV.22



- **MSIS Characteristics**
  - ☐ MSIS Subsystems

Let's examine some other characteristics of MSIS.

IV.23

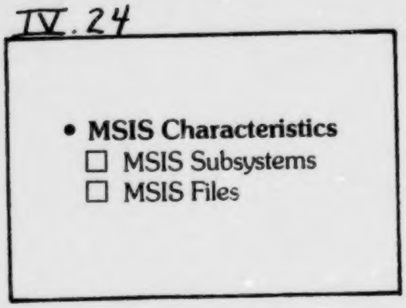


MSIS Subsystems

- Regulations (REGS)
- PWS Inventory (PWSI)
- Water Quality Compliance (WAQC)
- Federal Reporting (FEDR)
- Standard Processing (MSIS)
- Variances and Exemptions (VAEX)
- Enforcement Actions (ENAC)
- Sanitary Survey (SRVY)
- Operator and Mailing (OPER)

MSIS has nine subsystems. These nine subsystems will not be discussed separately. Take some time to review their names, abbreviations, and functions as you understand them.

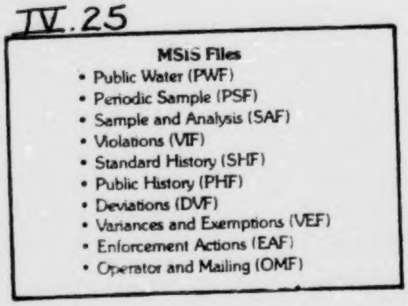
IV.24



- **MSIS Characteristics**
  - ☐ MSIS Subsystems
  - ☐ MSIS Files

Within the nine subsystems, there are 11 files. Again, review the names and abbreviations as shown and associate the file content as you understand it.

IV.25



MSIS Files

- Public Water (PWF)
- Periodic Sample (PSF)
- Sample and Analysis (SAF)
- Violations (VIF)
- Standard History (SHF)
- Public History (PHF)
- Deviations (DVF)
- Variances and Exemptions (VEF)
- Enforcement Actions (EAF)
- Operator and Mailing (OMF)

IV.26

- **MSIS Characteristics**
  - ☐ MSIS Subsystems
  - ☐ MSIS Files
  - ☐ MSIS Tables

MSIS has six tables. Again, take a moment to review them.

IV.27

MSIS Tables

- Error Message (EMT)
- Data Element (DET)
- Code Value (CVT)
- Laboratory (LBT)
- Public Water (PWT)
- Regulations (RGF)

IV.28

Introduction

- MSIS Development
- MSIS Capabilities
- MSIS Characteristics
- MSIS Output Reports

IV.29

- **MSIS Output Reports**
  - ☐ Statistical
  - ☐ Input
  - ☐ Error
  - ☐ Informational

MSIS produces the four types of output reports shown here.

The Informational Report category is by far the most important form from the user standpoint. It contains all the federal reports that MSIS was designed to produce. Some other useful Informational Reports are shown on the next slide.

IV.30

☐ **Informational Output Reports**

- PWS Comprehensive Listing
- PWS Condensed Reports
- MSIS History Reports
- Compliance Summary Report
- Chemical Sampling Schedule Reports

In fact, any one-time report that is requested from the computer with the PROC, SORT, SEL Processing Option Input Forms would be an Informational Report.

IV.31

IV.32

Input Forms

Although our emphasis in Volume IV is on Processing Option Input Forms, some general comments on the entire category of input forms are in order.

Simply stated, input forms 1) allow the user to enter desired information onto the computer files and tables; and, 2) tell the computer how and when to output this information.

IV.33

Types of Input Forms

- Processing Options
- Table Creation
- Record Creation and Maintenance
- Water Quality Transactions

MSIS has approximately 75 separate and distinct input forms, all of which fall into one of the four categories shown here. This course is concerned with only the first entry, Processing Options.

IV.34

Processing Option
Input Forms

In this course, we will first examine some representative examples of processing options input forms, and then work in detail with several study problems.

IV.35

Processing Option Input Forms

PROC
SORT
SEL1 (Selection Criteria 1)
SEL2 (Selection Criteria 2)

The Processing Options category itself contains four separate forms--PROC, SORT, SEL1, SEL2. Completed examples of these four forms will be considered in great detail. Technically, there is a fifth form called Restart. It is used by data processing personnel to "restart" a program which stops in the middle of a run. A more thorough discussion of the form is not applicable to the Selection Process and it will not be mentioned again.

IV.36

PROC Input Form
- Initiates Program Run
- Specifies Options
- Most Used

The 'primary' purpose of the PROC form is to initiate a program run. The PROC form allows the user to mechanize his first decision; that is, to run MSIS. This form also specifies the subsystem to be run, the specific program within the subsystem, and whether or not a report is desired. If a report is desired, the PROC form may specify the type, date and period of the report.

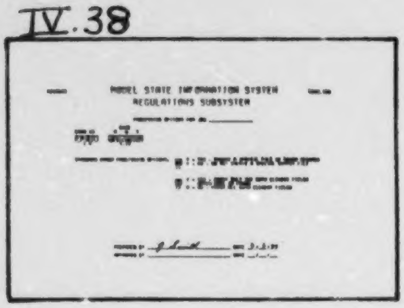
IV.37

Processing Option Input Forms

PROC
SORT
SEL1 (Selection Criteria 1)
SEL2 (Selection Criteria 2)

There are about 27 PROC forms. Each subsystem uses at least one. We will cover eight representative PROC forms here, moving from the simpler to the more complex.

IV.38

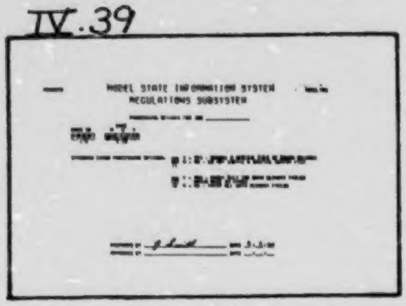


MODEL STATE INFORMATION SYSTEM
REGULATIONS SUBSYSTEM

Reproduced from best available copy.

Our first PROC form is the REGS.100 shown here. It will be utilized by the State at an early date since it performs the function of creating the REGS File. This is the only PROC Input Form used by the REGS subsystem. It precedes the REGS Table Creation Forms required to install federal and any State regulations. It specifies the date of the file's creation and of the subsequent input report.

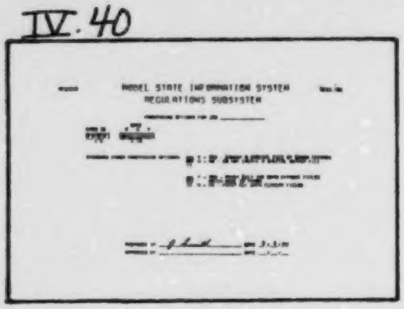
IV.39



MODEL STATE INFORMATION SYSTEM
REGULATIONS SUBSYSTEM

The two fields shown here are the four position card ID which spells out PROC and the standard six position date. The month, day, and year each require two positions. Zeros are used as necessary. The example shown is the date for September 10, 1977. Note the 09 for the ninth month. These two fields are common to all PROC forms and will not be elaborated on again.

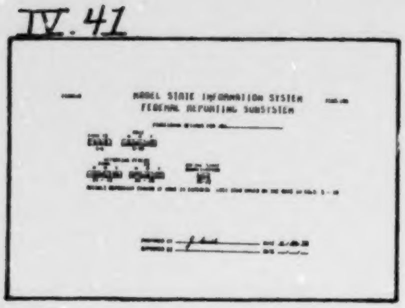
IV.40



MODEL STATE INFORMATION SYSTEM
REGULATIONS SUBSYSTEM

The processing options are shown in these two positions. In line 1 the user can choose to create a special file of error records. This example has a special file of error records. This example has the "N" entry, indicating no file creation is desired. In line 2, there is a "Y" to specify a print-out of the data element fields in error. You should recall that a file creation probably means that MSIS would output the information on magnetic tape, not on a user-readable listing. Notice the signature and date at the bottom of the form. This is the name of the person who prepared the form and the date it was prepared. The entry is standard on all Processing Option

IV.41

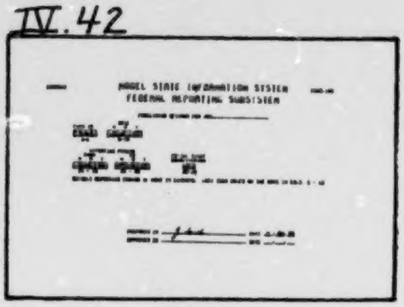


MODEL STATE INFORMATION SYSTEM
FEDERAL REPORTING SUBSYSTEM

Input Forms and will not be referred to again.

The FEDR.100 PROC form shown here is the only input form used by the FEDR subsystem. It contains the date and period covered in the report. The report is a magnetic tape whose contents fulfill three of the four federal reporting requirements handled by MSIS. We will discuss the fourth requirement later.

IV.42

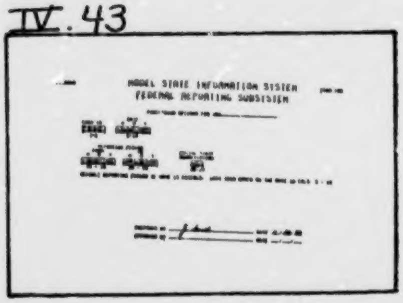


MODEL STATE INFORMATION SYSTEM
FEDERAL REPORTING SUBSYSTEM

The first line of data entry contains the familiar card ID and position date for the PROC forms.

The two fields shown on the second data entry line specify the period to be covered by the report. In both fields the common six-digit entry is used. These particular entries show how the first report for the federal government might be generated, covering the 1977 fiscal year.

IV.43

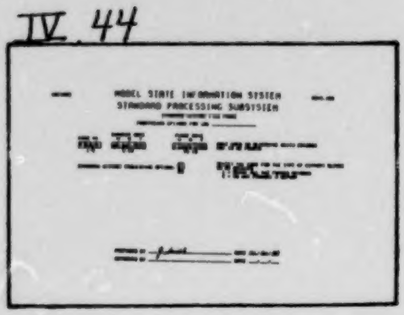


MODEL STATE INFORMATION SYSTEM
FEDERAL REPORTING SUBSYSTEM

The federal government will be receiving reports from many States.

The field shown here specifies the State identification (ID) for federal reporting. This example is "OH" for Ohio.

IV.44

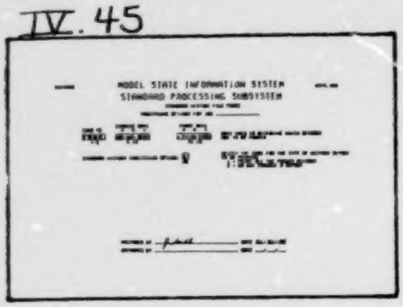


MODEL STATE INFORMATION SYSTEM
STANDARD PROCESSING SUBSYSTEM

MSIS.100 is a PROC form used by the Standard Processing subsystem to purge the Standard History File, or SHF. It is occasionally necessary to purge files of unneeded records to prevent their becoming unwieldy and expensive to manipulate.

Note the usual card ID and current date in fields one and two on this MSIS.100.

IV.45



MODEL STATE INFORMATION SYSTEM
STANDARD PROCESSING SUBSYSTEM

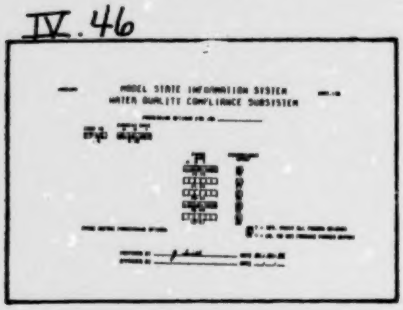
The field in positions 14-19 specifies the purge date for file entries; that is, all dates earlier than the date shown are no longer considered required and will be purged from the system.

The field in the second line, position 20, again allows the user a processing option. Here, the choice is between entering a 1, as in this example, which instructs the computer to print all the purged records, or by entering a 2, which tells the computer not to produce a report. It is usually a good idea to print out the purged records on a report in case they are required for further reference.

Remember MSIS keeps records and

the regulations specify how long. The date of 1/1/84 was chosen because it represents a reasonable estimation of when the SHF might first be purged.

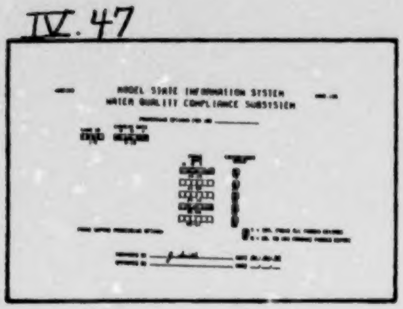
IV.46



MODEL STATE INFORMATION SYSTEM
WATER QUALITY COMPLIANCE SUBSYSTEM

The WAQC.130 performs the same general function as the previous example. In this instance, it is input to the WAQC subsystem to purge all records in specified contaminant groups from the SAF, if the records are older than the specified date.

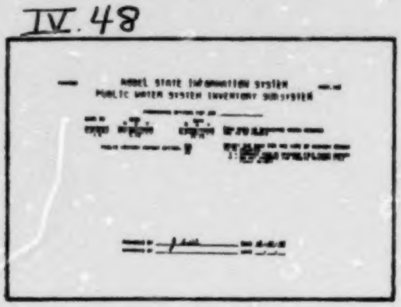
IV.47



Notice that the information in the second column, contaminant group, is pre-printed. The user then may choose to enter a purge date against any or all of the five contaminant groups pre-printed here. In our example, purge dates are entered for the "0" which is turbidity and the "3" which is the microbiological contaminant group. All codes for the contaminant groups are listed in the Data Element Dictionary.

Finally, notice the report option in the lower right hand corner. A "Y" entry, as this example shows, instructs the computer to print a report listing all purged records.

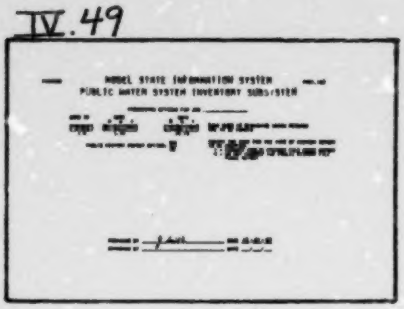
IV.48



MODEL STATE INFORMATION SYSTEM
PUBLIC WATER SYSTEM INVENTORY SUBSYSTEM

The PWSI.103 is used to purge records from the Public History File. Recall that the State's PWS Inventory is maintained on the Public Water File and that the file is so large that it has its own history file, the PHF. Do not confuse fields 2 and 3, which are both headed by the word, "Date". The third field contains the purge date.

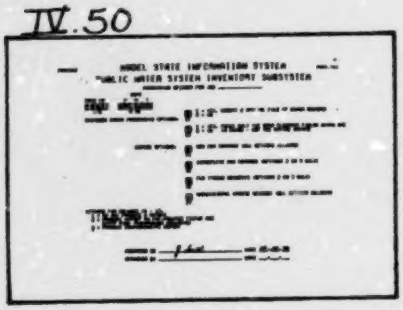
IV.49



MODEL STATE INFORMATION SYSTEM
PUBLIC WATER SYSTEM INVENTORY SUBSYSTEM

Although not contained in the column heading, the typed entry to the right of the field in positions 14-19 does indicate that this is the "date used to determine which records are to be purged". Below this field is again the familiar "Y" or "N" entry, allowing the user an option for printing a report of purged records.

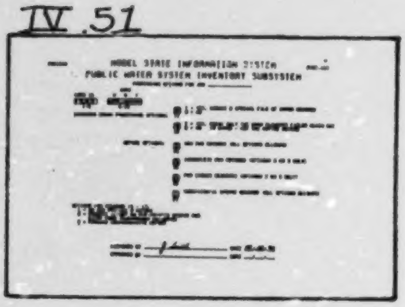
IV.50



MODEL STATE INFORMATION SYSTEM
PUBLIC WATER SYSTEM INVENTORY SUBSYSTEM

Note that this more complex PWSI PROC form contains both standard error processing options and several new report options which apply to PWS records on the PWF.

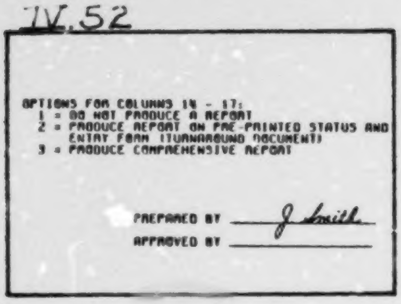
IV.51



MODEL STATE INFORMATION SYSTEM
PUBLIC WATER SYSTEM INVENTORY SUBSYSTEM

The first two options shown here are the familiar options for standard error processing.

IV.52

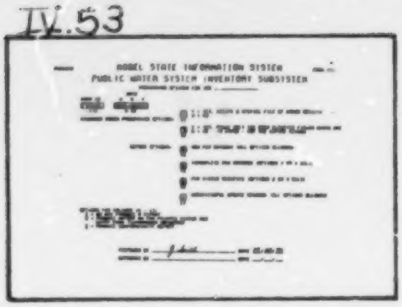


OPTIONS FOR COLUMNS 14 - 17:
1 = DO NOT PRODUCE A REPORT
2 = PRODUCE REPORT ON PRE-PRINTED STATUS AND ENTRY FORM (TURNAROUND DOCUMENT)
3 = PRODUCE COMPREHENSIVE REPORT

PREPARED BY J Smith
APPROVED BY ____________

Here is the key which explains the codes usable in the remaining four options. The 1 and 3 codes are the familiar instructions to the computer to produce or not to produce a report. The second option, identified with a 2, would only be applicable to turn-around documents. Now let's look again at the report options.

IV.53

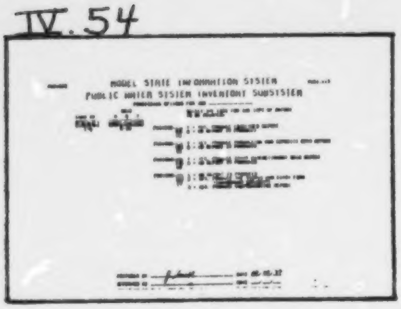


MODEL STATE INFORMATION SYSTEM
PUBLIC WATER SYSTEM INVENTORY SUBSYSTEM

Reproduced from best available copy.

Note, that for the report options at positions 15 and 16, the user cannot select option 1, which is "No Report". The MSIS was programmed to always supply the user with reports of incomplete PWS records and status requests. Note also, that all four of the report options may be coded as a 2 for the pre-printed status and entry form or turn-around document. Let's move to another example.

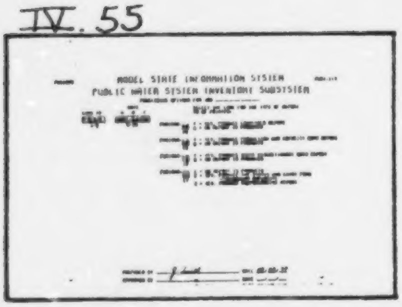
IV.54



MODEL STATE INFORMATION SYSTEM
PUBLIC WATER SYSTEM INVENTORY SUBSYSTEM

PWSI.113 allows the user to tell the computer which of the listed report-producing programs should output a report. The four programs are always run together. More than one report may be selected. This example has specified that a State Discretionary Data Report be printed.

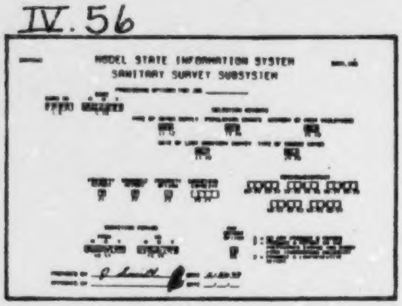
IV.55



MODEL STATE INFORMATION SYSTEM
PUBLIC WATER SYSTEM INVENTORY SUBSYSTEM

The numbers to the left of the data entry positions identify the PWSI program which can produce a report. The first three positions are the routine Y = yes for report, N = no report, while the fourth position again provides the turn-around document option selected here by entering a "2". Descriptions of each report may be found in the User's Manual.

IV.56

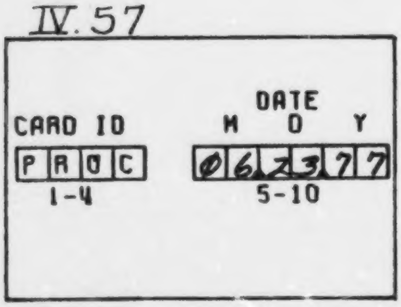


SRVY creates the sanitary survey schedule using the information contained on this SRVY .100.

Since the selection criteria have been predetermined, SEL1 and SEL2, (selection criteria) are not required. A SORT form may be used in some instances but is not always required.

As a result of this consolidation, some special entries are required on this PROC form which make it more complex than those we have encountered so far.

IV.57

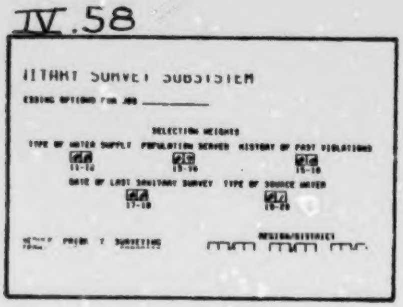


CARD ID
PROC
1-4

DATE
M D Y
062377
5-10

The first field is our familiar PROC input form identification, while the second entry is the equally familiar six-position date.

IV.58


SELECTION WEIGHTS

TYPE OF WATER SUPPLY

POPULATION SERVED

HISTORY OF PAST VIOLATIONS

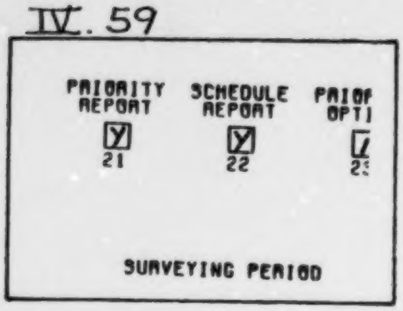
DATE OF LAST SANITARY SURVEY

TYPE OF SOURCE WATER

REGION/DISTRICT

The selection weights for PWS selections are shown here. The titles over these five blocks represent the pre-specified criteria used by the computer to automatically select PWSs for a sanitary survey. The entries in the blocks are weights established by the State to assign their relative priority to each area. The example entries here might be used by the state to produce the first schedule. The higher the numerical number entered, the higher the State priority on that particular item. Any entry may range from 0.0 to 1.0, but the total of all five entries cannot exceed 1.0.

IV. 59



PRIORITY REPORT
Y
21

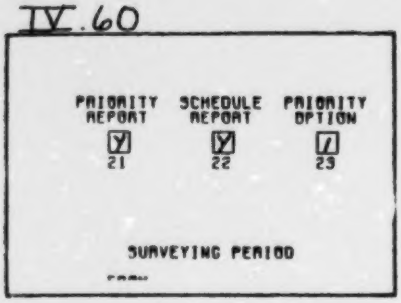
SCHEDULE REPORT
Y
22

PRIOF OPTI
23

SURVEYING PERIOD

Positions 21 and 22 allow the user to choose, or not, the output of a priority and a schedule report respectively. A priority report is sorted. If a "Y" is entered here, a SORT form is required. A schedule report is in the sequence determined by the computer, and therefore, is not sorted. In this example, we have selected both reports with "Y" entries. Although this is possible, normally the priority report would be produced for examination of the priority results before producing the final approved schedule report.

IV.60

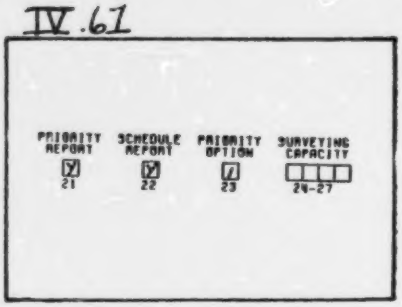


PRIORITY REPORT: Y (21)
SCHEDULE REPORT: Y (22)
PRIORITY OPTION: 1 (23)

SURVEYING PERIOD

Position 23 is completed for the priority option. It may be completed with a 1 for all PWSs, a 2 for specific regions and/or districts, and a 3 for equal distribution among all regions. These are specified in the Data Entry Instructions.

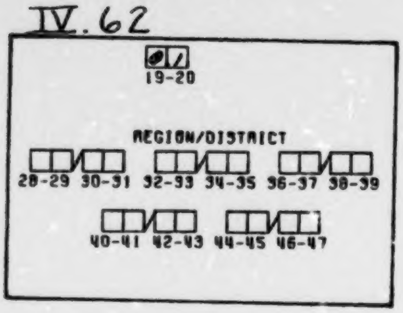
IV.61



PRIORITY REPORT: Y (21)
SCHEDULE REPORT: Y (22)
PRIORITY OPTION: 1 (23)
SURVEYING CAPACITY: ☐☐☐☐ (24-27)

Positions 24 through 27 indicate the report limit. In this position the State can specify a certain number of PWSs it would like reported because it knows how many sanitary surveys it can perform. If left blank, the report will be unlimited, and will schedule all PWS's using the weighting criteria. The example is blank because priority option 1 for all PWSs was selected.

IV.62



01
19-20

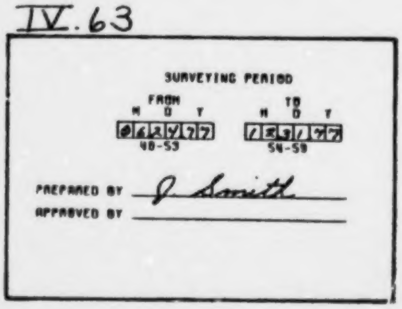
REGION/DISTRICT

☐☐/☐☐ ☐☐/☐☐ ☐☐/☐☐
28-29 30-31 32-33 34-35 36-37 38-39

☐☐/☐☐ ☐☐/☐☐
40-41 42-43 44-45 46-47

Note that each field contains two positions, but that in all cases two fields are joined. Invariably, the first two-position field will be the region, and the second two-position field will be the district. At least one region entry must be made if priority option 2 was selected and no entry may be made if priority option 2 was not selected. In this example, priority option 2 was not selected so these fields must be left blank.

IV.63



SURVEYING PERIOD

FROM: M D Y — 0 6 2 4 7 7 — 48-53

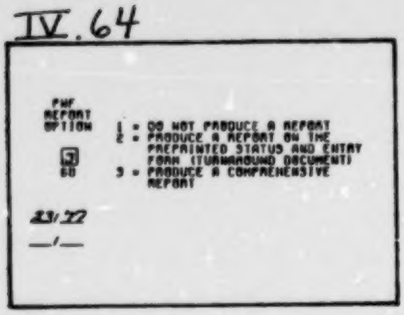
TO: M D Y — 1 2 3 1 7 7 — 54-59

PREPARED BY J. Smith

APPROVED BY

These two fields indicate the period that the schedule will cover. The first field is for the beginning date; the second field, for the ending date.

IV.64



PWF
REPORT
OPTION

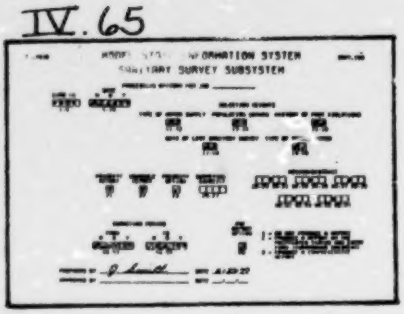
3
60

1 = DO NOT PRODUCE A REPORT
2 = PRODUCE A REPORT ON THE PREPRINTED STATUS AND ENTRY FORM (TURNAROUND DOCUMENT)
3 = PRODUCE A COMPREHENSIVE REPORT

23/22
__/__

There is provision here for a one-digit entry in position 60. The key is shown to the right for the PWF report option. As indicated, the 1 is "Do not produce a report", the 2, "Produce a report on the preprinted status and entry form" (turn-around document); and the 3, "Produce a comprehensive report". These options only apply to the schedule report (position 22) and an entry should be made if that option is "Y". The 3 entry here will produce a schedule report.

IV.65



MODEL STATE INFORMATION SYSTEM
SANITARY SURVEY SUBSYSTEM

The SRVY.101 SORT form is only used when the priority report option of SRVY.100, position 21, contains a "Y" and the priority option selected is "1" or "2". Otherwise this single PROC form, SRVY.100 is the only input form required to produce the Sanitary Survey Report. Since we have a "Y" in position 21 and a "1" in position 23, a SORT form could be submitted. If it is not included, the program will run and sort the report in the sequence generated.

IV.66

PROC Error Messages

Before discussing PROC error messages, let's look at error messages in general.

IV.67

Error Reports
- Data Entry

There are three general categories of error messages. Data entry error messages are contained on the Error Message Table; they are output in Data Entry Error Reports; they are always preceded by either the word, "Warning", "Invalid", or "Reject"; and do not stop the program run.

IV.68

Error Reports
- Data Entry
- Processing Options

Processing option errors do stop the program run and result in the Standard Error Report. As we discuss the PROC, SORT, and SEL forms, we will look at the possible error messages for each.

IV.69

Error Reports

- Data Entry
- Processing Options
- Warning

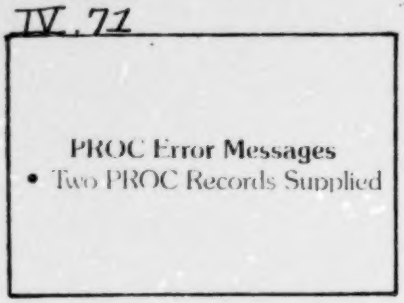
When an EPA requested field is omitted a warning message is generated on the third type of error report, the Standard Warning Report.

IV.70

PROC Error Messages

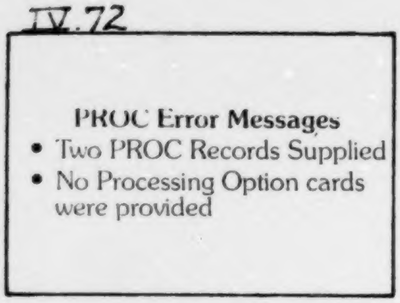
The purpose of all PROC Error Messages is to advise the computer operator that a problem occurred which must be corrected before the run can be made. The specific PROC Error Messages are shown on the next slide.

IV.71


PROC Error Messages
- Two PROC Records Supplied

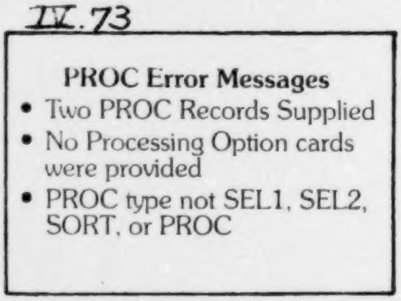
Two PROCs indicate confusion or a mix-up; therefore, the run stops.

IV.72


PROC Error Messages
- Two PROC Records Supplied
- No Processing Option cards were provided

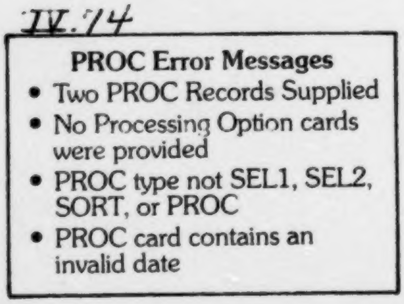
If no PROC is present, a mistake has been made and again the run stops.

IV.73


PROC Error Messages
- Two PROC Records Supplied
- No Processing Option cards were provided
- PROC type not SEL1, SEL2, SORT, or PROC

If a non-"Processing Option" input form was used, a mistake has been made and the run stops.

IV.74


PROC Error Messages
- Two PROC Records Supplied
- No Processing Option cards were provided
- PROC type not SEL1, SEL2, SORT, or PROC
- PROC card contains an invalid date

An invalid date indicates an error; therefore, the run stops.

CHANGE SLIDE TRAY AND AUDIO CASSETTE

IV.75

Processing Option
Input Forms
PROC
SORT

Our second type of Processing Options form is the SORT form. As previously mentioned, the PROC forms mechanize the user's decision to run the computer and determine what subsystem will be run, what programs within that subsystem will be run, and whether or not a report will be produced.

The second step in the decision process is the ordering of information on the report that will be produced. The SORT form is used to implement this decision.

IV.76

SORT Input Form
- Presupposes Output
- SORT Sequence
- Limitations

The SORT form presupposes an informational output report; and it tells the computer how to sort output information.

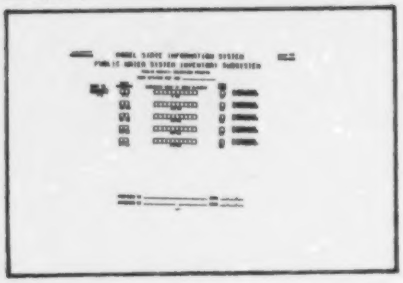
SORT forms indicate the data elements to be used in sorting, specify the sorting sequence, the sequence of their use, and indicate either an ascending or descending sorting order.

MSIS has two sort limitations. First, only the first 15 positions of any single field are used in a sort. Second, the total of all of the positions of all of the fields specified may not exceed 30 positions. The Data Element Dictionary must be consulted to determine the length of the data elements to be used.

We will now examine some SORT

forms in detail.

IV.77

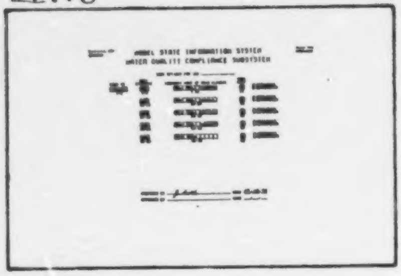


Let's use this WAQC.113 to illustrate some general characteristics of SORT forms.

The six SORT forms used by MSIS are quite similar. The only variables are the subsystem name, the form ID, and the program ID. Only the REGS and FEDR subsystems do not use the SORT form, since, in both instances, their file contents cannot be rearranged in an output report.

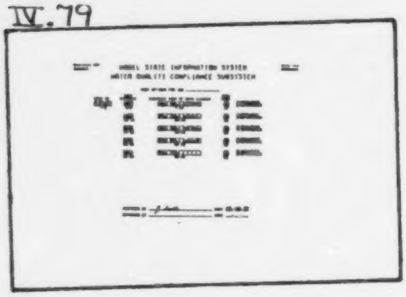
The SORT form is used at various points in report production. Consult the User's Manual for the specific use in any particular program.

IV.78



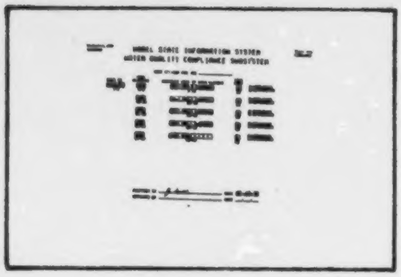
This is PWSI.100. Note that the only difference between this SORT form and our last example is the subsystem name, program ID, and form ID.

IV.79



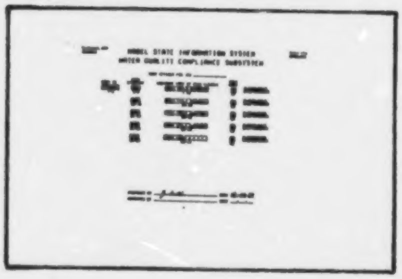
Under the heading, "Sort Sequence", we see five entries, the maximum number that can be entered with any one SORT form. However, two SORT forms may be used in one program. We notice that the sort sequence is numerical, consecutive, and ascending, a mandatory format for the SORT form.

IV.80



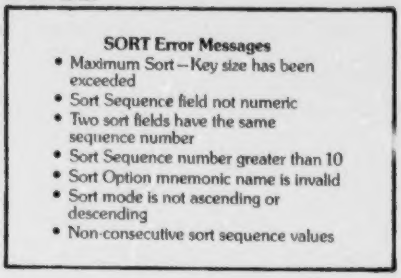
These fields contain the mnemonic name of the data element to be sorted in each of the sequences previously entered. The correct name as well as the size of the field must be obtained from the Data Element Dictionary. Recall that the total number of positions in the sort cannot exceed 30. The fields shown in this example add up to exactly 30 positions: plant type 1, cycle 2, storage 10, production 10, and ID 7. Also, since no field exceeds 15 positions, no sorting problem will occur.

IV.81



As always, either an ascending or descending mode must be specified for each sort.

IV.82

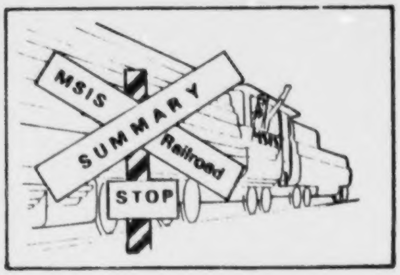


SORT Error Messages

- Maximum Sort—Key size has been exceeded
- Sort Sequence field not numeric
- Two sort fields have the same sequence number
- Sort Sequence number greater than 10
- Sort Option mnemonic name is invalid
- Sort mode is not ascending or descending
- Non-consecutive sort sequence values

Read the possible list of SORT errors shown and associate them with our previous discussion. Again, any error on a SORT form stops the program run.

IV.83



That concludes our consideration of PROC and SORT Input Forms. Let's review what's been covered.

Types of Input Forms

- Processing Options
- Table Creation
- Record Creation and Maintenance
- Water Quality Transactions

There are four categories of MSIS input forms. All are used either to input information to the computer or to tell the computer how and when to output information in the form of reports or files.

IV.85

Processing Option Input Forms

- ☐ PROC
- ☐ SORT
- ☐ SEL1 (Selection Criteria 1)
- ☐ SEL2 (Selection Criteria 2)

Both the PROC and SORT forms are members of the Processing Options functional category of input forms.

IV.86

PROC Input Form

- Initiates Program Run
- Specifies Options
- Most Used

PROC forms are used to initiate program runs. Consequently, they are the first consideration in any decision to obtain output reports.

PROC forms not only specify the date, period and type of report, but also whether or not a report will be provided.

IV.87

SORT Input Form

- Presupposes Output
- SORT Sequence
- Limitations

Recall that SORT forms are appropriate when an output report is being produced. SORT forms specify the data element to be used in sorting, the sorting sequence, and indicate an ascending or descending order.

The limitations are the use of the first 15 positions of any single data element field and a maximum of 30 positions sorted for all fields specified.

IV.88

In this course, the conscientious completion of the work exercises is crucial to your learning. The one-way communication format used here has a very real limitation in attempting to provide some practical skills in Input Form completion. Hopefully, we have provided the knowledge required. Now you must attain the practical skill through your own efforts.

IV.89

Refer to: IV.1.E1
IV.1.A1

These are the appropriate review exercises, also contained in your workbook.

STOP TAPE . . . COMPLETE REVIEW/EXERCISES

IV.90

Processing Option Input Forms

☐ PROC
☐ SORT
☐ SEL1 (Selection Criteria 1)
☐ SEL2 (Selection Criteria 2)

In considering the user's decision-making process, we noted that the PROC form implemented the decision to run MSIS and produce a report. The SORT form was used to order the information on the report produced. The next step, record selection, is accomplished with SEL1 and SEL2.

IV.91

SEL Input Forms
- Select Records

First, it should be noted that the selection of records from a computer file is a fairly complex process. Not surprisingly, completing the input forms required to accomplish this record selection is also somewhat complex.

IV.92

SEL Input Forms
- Select Records
- Determine Report Usefulness

Notwithstanding this difficulty, proper record selection is necessary to assure a useful output report. In the following examples, we will examine in great detail the steps required to produce some output reports.

IV.93

SEL Input Forms
- Select Records
- Determine Report Usefulness
- Work Together

It should be noted that SEL1 and SEL2 are both required for record selection. Neither is complete without the other. In fact they have the same program number.

IV.94

SEL Input Forms
- Select Records
- Determine Report Usefulness
- Work Together
- Selection Process

There are three logic selection conditions which are expressed with SEL1 and SEL2.

IV.95

Selection Process
- SIMPLE
- AND
- OR

In the selection of data elements, the three possible logic conditions are the SIMPLE, the AND, and the OR conditional statements. Combinations of each may also be used.

IV.96

Selection Process
- SIMPLE

In the SIMPLE condition, only one conditional statement is specified. Only one SEL1 and one SEL2 are required.

IV.97

Selection Process

- SIMPLE
- AND

Selection with the AND condition means the record will be selected if, and only if, it meets both conditions, that is, condition one and condition two.

In completing SEL2 for the AND condition, two entries are made on the same form. As usual, only one SEL1 is needed.

IV.98

Selection Process
- SIMPLE
- AND
- OR

Selections with the OR conditional statement mean the record will be selected if it meets either condition specified, that is, condition one or condition two.

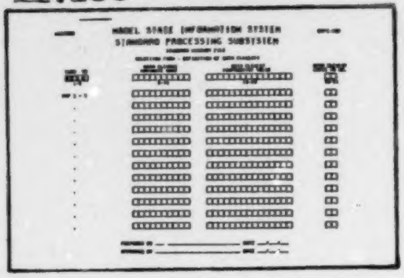
The OR condition requires two SEL2 forms for each OR statement. Again, one SEL1 is sufficient.

IV.99

Selection Process

To summarize: only one SEL1 is required for any condition. SIMPLE and AND logic conditions require one SEL2. The OR condition requires two SEL2's for each OR condition present.

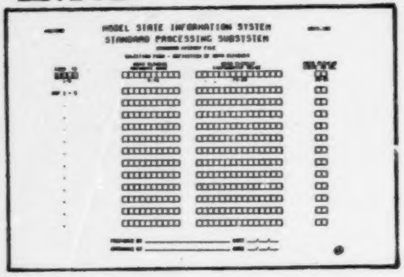
IV.100



MODEL STATE INFORMATION SYSTEM
STANDARD PROCESSING SUBSYSTEM

MSIS.106 is a SEL input form for the Standard History File. As with all SEL1's, provisions are made to enter the data element mnemonic name and the value of the data element to be compared for selection. Note the pre-printed card ID in position 1-4.

IV.101



MODEL STATE INFORMATION SYSTEM
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The card ID is shown here. Note the keypunch instructions, "Dup 1-4". This means the card ID is entered on each data line of this form, and further, that each line entry here is a separate keypunch card and constitutes a complete entry on SEL1.

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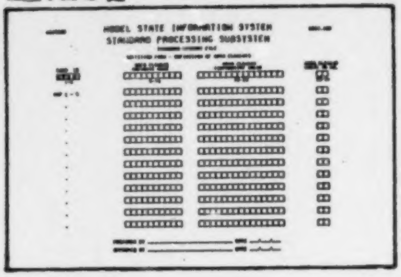
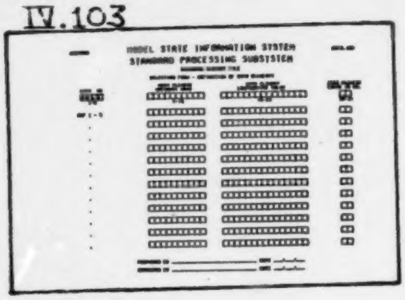
IV.102



MODEL STATE INFORMATION SYSTEM
STANDARD PROCESSING SUBSYSTEM

The mnemonic name of the data element to be compared for selection is entered here.

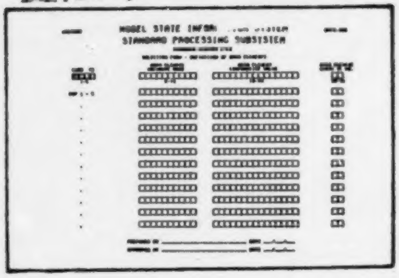
IV.103



MODEL STATE INFORMATION SYSTEM
STANDARD PROCESSING SUBSYSTEM

The value of the data element to be compared against MSIS files is entered here.

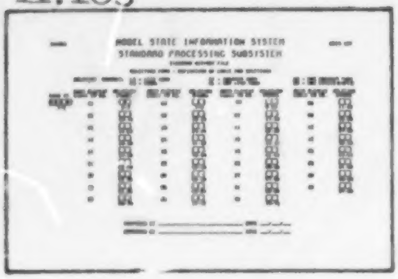
IV.104



MODEL STATE INFORM
STANDARD PROCESSING SUBSYSTEM

This field is for the data element logic ID number. An entry here is vital since this is the link that connects the SEL1 to SEL2. Remember that SEL2 is required to complete the selection process.

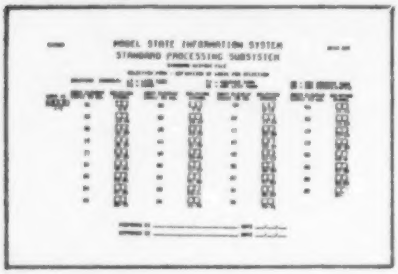
IV.105



MODEL STATE INFORMATION SYSTEM
STANDARD PROCESSING SUBSYSTEM

This is MSIS.107, a SEL2. Note that the entire form consists of pre-printed data element logic ID's and their associated relation symbols.

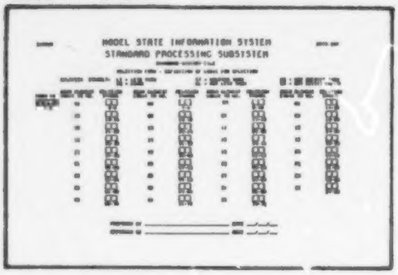
IV.106



MODEL STATE INFORMATION SYSTEM
STANDARD PROCESSING SUBSYSTEM

Positions 1-4 contain the card ID.

IV.107

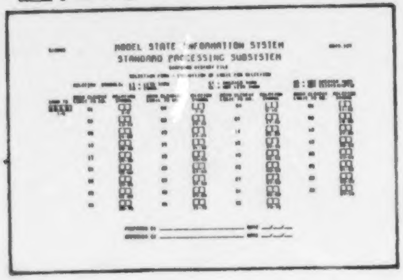


MODEL STATE INFORMATION SYSTEM
STANDARD PROCESSING SUBSYSTEM

The first field contains the pre-printed data element logic ID number. In this example it is "01". This number corresponds exactly to the data element logic ID number of "01" that was assigned to a line on SEL1. The second field on this SEL2 is then used to enter the desired relation between the value of the specified data element of any one record and the value specified for comparison on SEL1. One of the following six entries is permissible:

Less than
Equal
Greater than
Not less than
Not greater than
Not exists (empty)

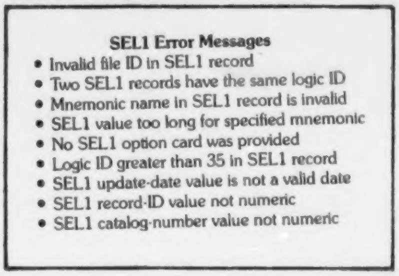
IV.108



MODEL STATE INFORMATION SYSTEM
STANDARD PROCESSING SUBSYSTEM

The Relation Symbol on this SEL2 relates the actual value of the data element as it exists on the computer file to the Data Element Comparative Value entered on SEL1. In effect, it tells the computer what relationship must exist between the two data elements for the record to be selected.

IV.109

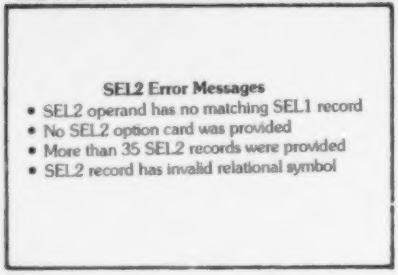


SEL1 Error Messages

- Invalid file ID in SEL1 record
- Two SEL1 records have the same logic ID
- Mnemonic name in SEL1 record is invalid
- SEL1 value too long for specified mnemonic
- No SEL1 option card was provided
- Logic ID greater than 35 in SEL1 record
- SEL1 update-date value is not a valid date
- SEL1 record-ID value not numeric
- SEL1 catalog-number value not numeric

The error messages for the SEL input forms are shown here. Review them and associate the errors with our previous discussion. For a lengthier explanation of these and the SEL2 error messages, see the User's Manual. Again, remember that these errors stop the program run.

IV.110



SEL2 Error Messages

- SEL2 operand has no matching SEL1 record
- No SEL2 option card was provided
- More than 35 SEL2 records were provided
- SEL2 record has invalid relational symbol

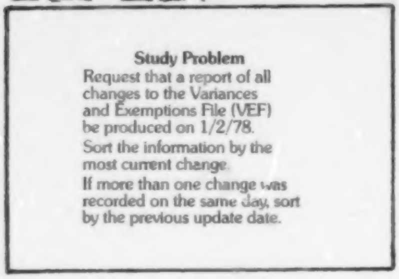
These are the SEL2 errors.

IV.111

That concludes our detailed study of the Processing Options Forms. At this point we want to consider the practical applications of the knowledge we have gained about MSIS. Specifically, we will consider how to obtain Informational Output Reports from the system.

We will do this by posing, and solving, some requests that you, the user, might want to make of MSIS.

IV112 - IV114



Study Problem

Request that a report of all changes to the Variances and Exemptions File (VEF) be produced on 1/2/78.

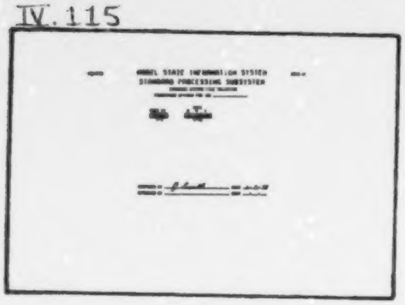
Sort the information by the most current change.

If more than one change was recorded on the same day, sort by the previous update date.

Our first problem is to produce a report of all changes to the variances and exemptions (VE) file, to sort the information by the most currect change, and if more than one change was recorded on the same day, to sort by the previous update date.

The user can think immediately of the three steps in the decision-making process. That is, use a PROC form to initiate a run, a SORT form to order the information, and the SEL forms to select the records. We will now complete the forms necessary to solve the problem.

IV.115

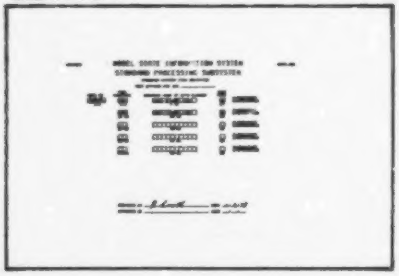


The history records for the VAEX subsystem contain all changes made to the VEF. These records are maintained by MSIS on the Standard History File. Therefore, we use the MSIS PROC form to initiate the program run. Although simple, it is absolutely essential to run the program which will generate the SHF report.

IV.116

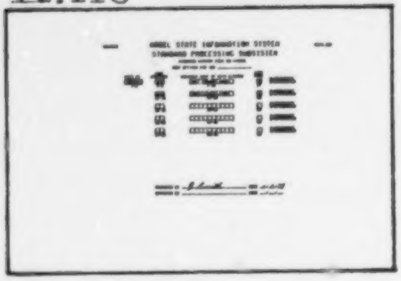
The MSIS PROC also provides the date for the report. In this example it is January 2, 1978.

IV.117



The SORT form is required to position and order information on the SHF report. Two entries are required since two sorts are needed. Let's look at the required entries in more detail.

IV.118

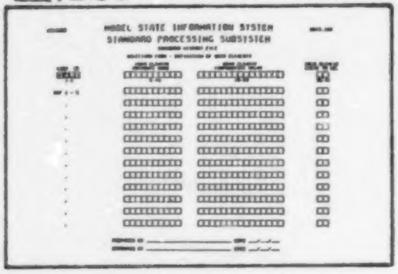


Using the Data Element Dictionary (DED), we find that there are two dates on the SHF: SH-CUR-UP and SH-LST-UP. Since there is some question as to which date is the most recent change, we look in the DED for a description of the two dates. We find that SH-CUR-UP is the date of the most recent change and that SH-LST-UP is the previous date of change. Therefore, the first sort sequence "01" is the SH-CUR-UP in a descending mode.

IV.119

MODEL STATE INFORMATION SYSTEM
STANDARD PROCESSING SUBSYSTEM

IV.120



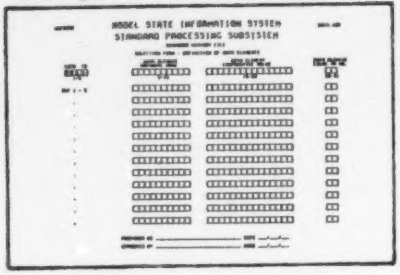
MODEL STATE INFORMATION SYSTEM
STANDARD PROCESSING SUBSYSTEM

The second sequence, "02", is then the SH-LST-UP in a descending mode. This information will be a subset of the first sort.

We know that the SHF contains history records not only from the VIF, but also from the EAF, VEF and OMF. Since we only want those from the VEF, we need to specify that selection on SEL1.

The SEL1 form from the MSIS subsystem is used.

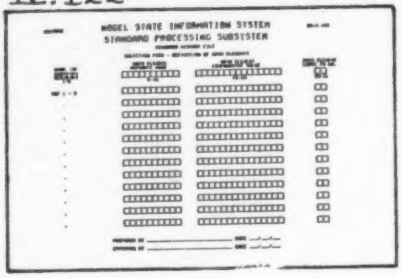
IV.121



MODEL STATE INFORMATION SYSTEM
STANDARD PROCESSING SUBSYSTEM

The DED shows that SH-FILE-ID specifies the file that the history record is from; therefore, we enter SH-FILE-ID. Since the File ID we want (or comparison value) is the Variances and Exemptions File, a VE is entered.

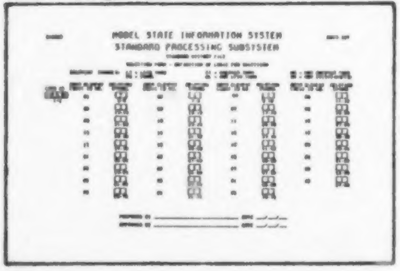
IV.122



MODEL STATE INFORMATION SYSTEM
STANDARD PROCESSING SUBSYSTEM

Since this is the first data element to be entered, a "01" is assigned as the logic ID. Since only one comparison was specified, our condition logic is the SIMPLE condition. Thus, we would expect the accompanying SEL2 form to show a single entry.

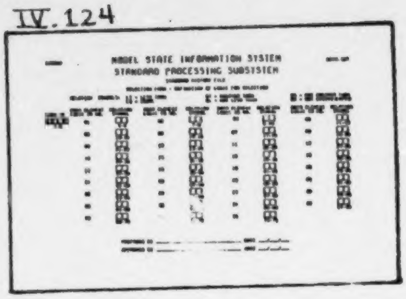
IV.123



MODEL STATE INFORMATION SYSTEM
STANDARD PROCESSING SUBSYSTEM

As expected, there is a single entry.

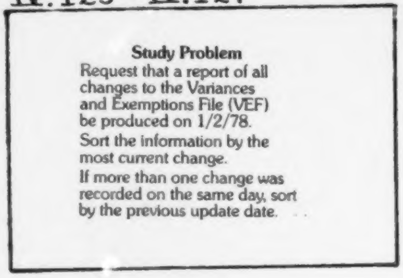
IV.124



MODEL STATE INFORMATION SYSTEM
STANDARD PROCESSING SUBSYSTEM

The relation "EQ" for equal is assigned against the matching SEL1 "01" logic ID number. Therefore, the computer will select all records on the SHF that contain VE data.

IV.125 - IV.127



Study Problem

Request that a report of all changes to the Variances and Exemptions File (VEF) be produced on 1/2/78.

Sort the information by the most current change.

If more than one change was recorded on the same day, sort by the previous update date.

That completes our problem representing the SIMPLE condition logic statement.

IV.128

Study Problem

Request a condensed report of variances and exemptions that were in effect during any part of 1977 on January 2, 1978.

Here is a problem representing the AND logic condition.

Our next problem is to prepare a condensed report of variances and exemptions that were in effect during any part of 1977.

IV.129

If a PWS has more than one variance and/or exemption sort them by VE-ID.

This report should be generated on January 2, 1978.

It should be sorted by variance and exemption ID, ascending.

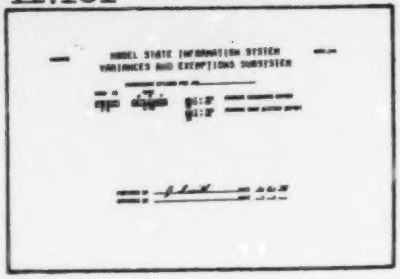
The sort should be within variance or exemption, within PWS ID.

IV.130

Sort the report by PWS-ID. If a PWS has both variance(s) and exemption(s) sort variance(s) first then exemption(s).

Again, our routine response of PROC-SORT-SEL is appropriate. We should expect to make three sorts of the information by VE ID, within VE type, and within PWS ID.

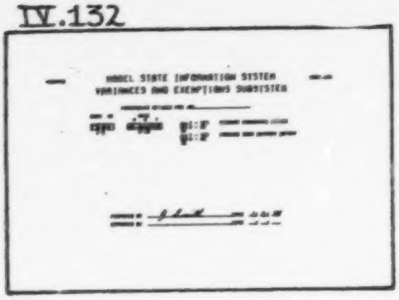
IV.131



MODEL STATE INFORMATION SYSTEM
VARIANCES AND EXCEPTIONS SUBSYSTEM

Again, the PROC form initiates the program run and specifies the current date which will be printed on the requested report.

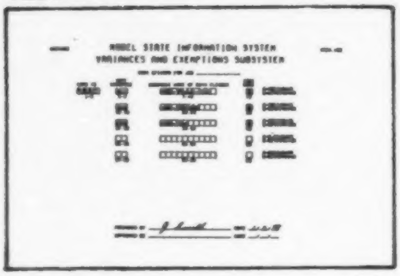
IV.132



MODEL STATE INFORMATION SYSTEM
VARIANCES AND EXCEPTIONS SUBSYSTEM

In this instance, we have two report options. We choose the condensed report and refuse the case history since it wasn't requested.

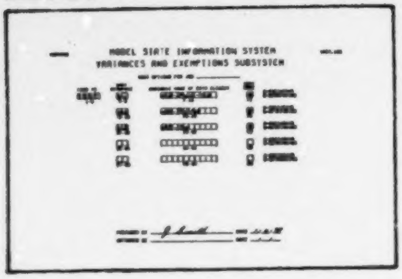
IV.133



MODEL STATE INFORMATION SYSTEM
VARIANCES AND EXCEPTIONS SUBSYSTEM

Here we are using the VAEX SORT form. As expected, we find three entries.

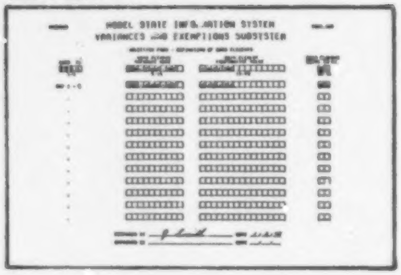
IV.134



MODEL STATE INFORMATION SYSTEM
VARIANCES AND EXEMPTIONS SUBSYSTEM

The first line of data entry will sort the selected records by PWS ID and list them in an ascending order. The second sort will group the variances and exemptions granted to a particular PWS and will, as a result, list them in descending order, putting variances first and exemptions second. The third sort will look at the variances and exemptions for a PWS and sort them by the variance or exemption ID in an ascending order.

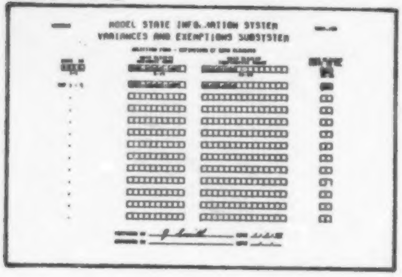
IV.135



MODEL STATE INFORMATION SYSTEM
VARIANCES AND EXEMPTIONS SUBSYSTEM

We know we will use the VAEX SEL1. We know we want to specify the selection of all variances and exemptions in effect during the year of 1977. However, the translation of the request to the SEL1 and SEL2 forms is a little more difficult.

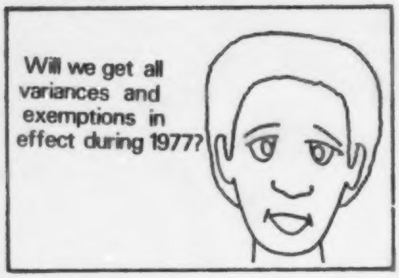
IV.136



MODEL STATE INFORMATION SYSTEM
VARIANCES AND EXEMPTIONS SUBSYSTEM

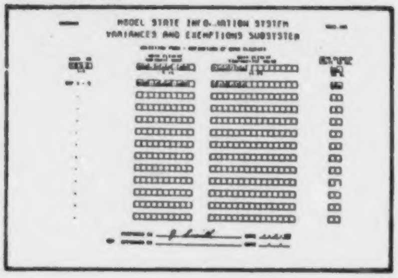
One condition for selection of a variance or exemption in effect during 1977 would be if its expiration date was greater than the last day of 1976. We use the Data Element Dictionary to find an expiration date on the file called VE-EXP-DT. Therefore, the first line of data entry is the data element for variances and exemptions expiring, VE-EXP-DT, and the corresponding comparative value is 12-31-76.

IV.137


Will we get all variances and exemptions in effect during 1977?

If we select all variances and exemptions whose expiration date is later than 12-31-76, will we get all variances and exemptions in effect during 1977? The answer to that question is yes. However, that is not all we will get. Suppose there are either variances or exemptions on file with an effective date in 1978. Since their expiration date is after 12-31-77, they satisfy our first condition. However, they were not in effect during 1977 and must be excluded. To do this we must specify a second condition.

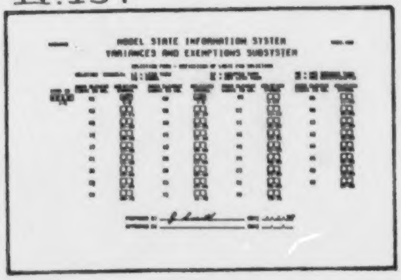
IV.138



MODEL STATE INFORMATION SYSTEM
VARIANCES AND EXEMPTIONS SUBSYSTEM

We consult the DED for an effective date and find one under the name VE-EFF-DT. This becomes our second condition for record selection. On the second data line we enter the data element effective date, VE-EFF-DT, and the corresponding comparison value of 01-01-78.

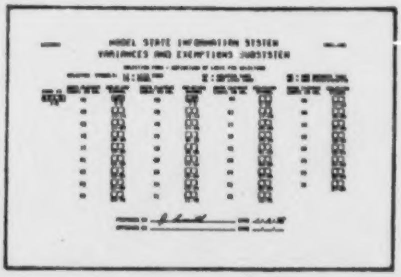
IV.139



MODEL STATE INFORMATION SYSTEM
VARIANCES AND EXEMPTIONS SUBSYSTEM

Remember, in stating the first condition on SEL1 we said the variance or exemption expiration must be greater than 12-31-76 for the variance or exemption to be in effect during the year of 1977.

IV.140



MODEL STATE INFORMATION SYSTEM
VARIANCES AND EXEMPTIONS SUBSYSTEM

The relation symbol for the first logic ID is shown as "GT" for greater than.

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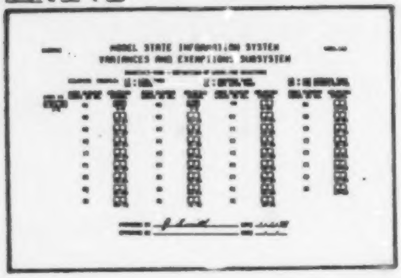
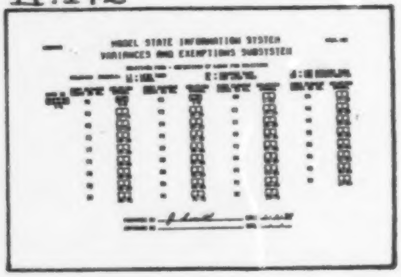
IV.141



MODEL STATE INFORMATION SYSTEM
VARIANCES AND EXEMPTIONS SUBSYSTEM

For the second condition, we said the effective date of the variance or exemption had to be before 01-01-78. Thus, the relation symbol for the second logic ID is shown as "LT" for less than.

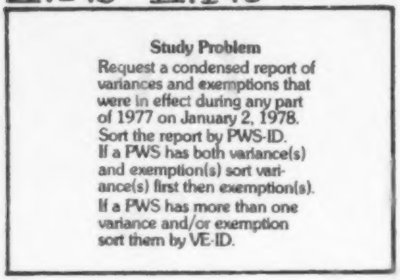
IV.142



MODEL STATE INFORMATION SYSTEM
VARIANCES AND EXEMPTIONS SUBSYSTEM

The AND condition requires that a record must satisfy both conditions to be selected. By using one SEL2 and entering both relation symbols, we have correctly represented the AND logic condition. Notice that the use of one condition selects a subset of the whole file. Use of the AND condition makes it more difficult for a record to be selected and therefore the resulting selected group is a subset of the first subset.

IV.143 - IV.145



Study Problem

Request a condensed report of variances and exemptions that were in effect during any part of 1977 on January 2, 1978. Sort the report by PWS-ID. If a PWS has both variance(s) and exemption(s) sort variance(s) first then exemption(s). If a PWS has more than one variance and/or exemption sort them by VE-ID.

In summary, we used a PROC to initiate the run, specify the date, and select a condensed report. SORT was used to specify the sorting sequence and order. One SEL1 and one SEL2 were used to specify the two conditions in the AND logic. The end result was to select only those records in effect during the entire year of 1977.

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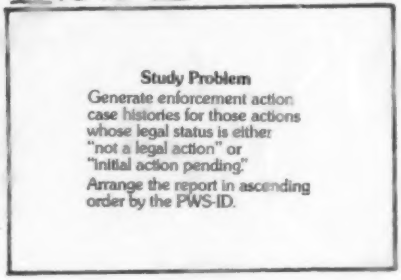
AND AUDIO CASSETTE

IV.146 - IV.147

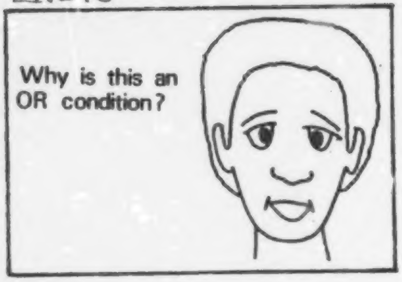


Study Problem

Generate enforcement action case histories for those actions whose legal status is either "not a legal action" or "initial action pending." Arrange the report in ascending order by the PWS-ID.

Let's look now at a study problem which uses the OR logic condition. The next problem is to generate enforcement action case histories for those actions whose legal status is either "not a legal action" or "initial action pending," and to arrange the report in ascending order by the PWS involved.

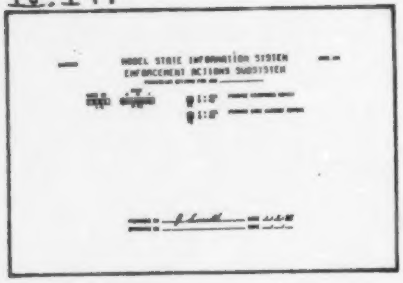
IV.148


Why is this an OR condition?

This problem satisfies the OR logic condition since we want those whose:

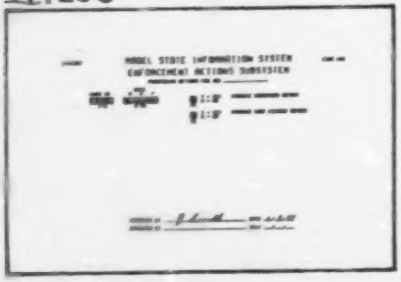
1. Legal status is "not a legal action," OR
2. Legal status is "initial action pending."

IV.149


MODEL STATE INFORMATION SYSTEM
ENFORCEMENT ACTIONS SUBSYSTEM

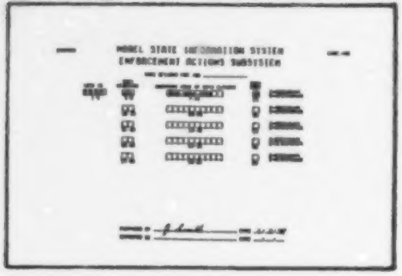
Again PROC, SORT, SEL is appropriate. Certainly, since we want enforcement actions information, we will need to run the enforcement actions subsystem; in this instance, the correct PROC is ENAC.105. Again, we input the currect date.

IV.150


MODEL STATE INFORMATION SYSTEM
ENFORCEMENT ACTIONS SUBSYSTEM

Again, we also have report options. In this problem we do not want the condensed report. Instead we specify the case history report.

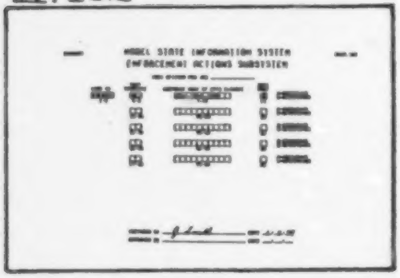
IV.151



MODEL STATE INFORMATION SYSTEM
ENFORCEMENT ACTIONS SUBSYSTEM

As expected, this ENAC.106 contains one entry.

IV.152

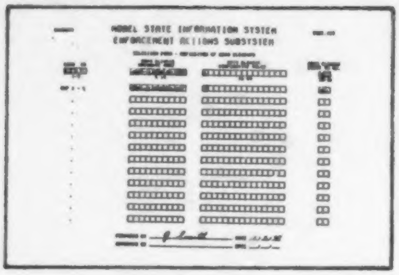


MODEL STATE INFORMATION SYSTEM
ENFORCEMENT ACTIONS SUBSYSTEM

We are looking at the EAF, whose only entries are enforcement actions.

There is one sort sequence; the data element to be sorted on is the PWS ID. Again, the correct mnemonic name of the data element is found on the EAF record layout. The mode is ascending.

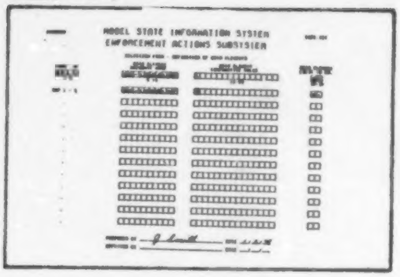
IV.153



MODEL STATE INFORMATION SYSTEM
ENFORCEMENT ACTIONS SUBSYSTEM

In this SEL1 the data element mnemonic name again comes from the record layout of the EAF. This ENAC.107 contains two entries since two data element comparative values are required for the OR logic condition. The legal status of "L" was found in the Code Value Table and means "not a legal action." "I" is the code for "initial action pending."

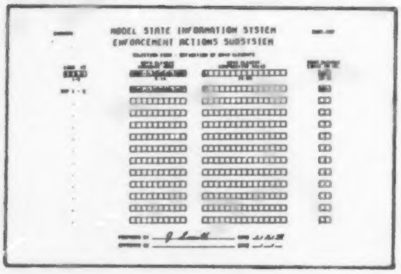
IV.154



MODEL STATE INFORMATION SYSTEM
ENFORCEMENT ACTIONS SUBSYSTEM

Note that in the first field of each of the two lines of data entry the data element mnemonic name is identical. In each instance it is the legal status. The distinction we want to make is the comparison value within that legal status. As a consequence, we enter the comparison values of "L" and "I" in the second field of each respective line of data entry.

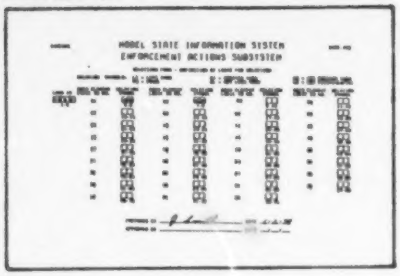
IV.155



MODEL STATE INFORMATION SYSTEM
ENFORCEMENT ACTIONS SUBSYSTEM

Don't forget the data element logic ID. It's a required entry and if omitted will produce an error message. Notice how the entries are in ascending, sequential, numerical order as required.

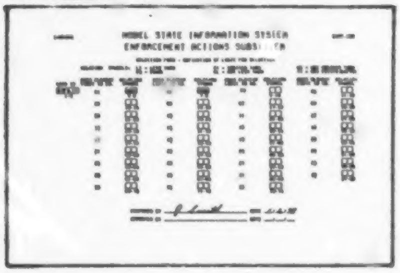
IV.156



MODEL STATE INFORMATION SYSTEM
ENFORCEMENT ACTIONS SUBSYSTEM

Here we have the ENAC SEL2. We know that an OR condition was used for the selection. Therefore, two SEL2 forms will be required with one relation symbol entry on each form.

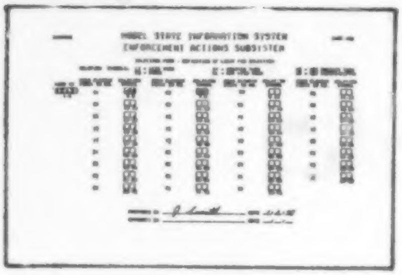
IV.157



MODEL STATE INFORMATION SYSTEM
ENFORCEMENT ACTIONS SUBSYSTEM

Here is the first SEL2. For the first data element logic ID whose comparative value on SEL1 was "L", a relationship of equal is specified since we want those with legal status of "L".

IV.158

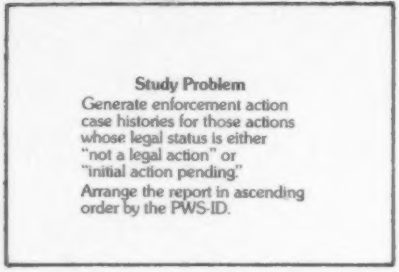


MODEL STATE INFORMATION SYSTEM
ENFORCEMENT ACTIONS SUBSYSTEM

The relation symbol of equal is shown here for the second logic ID entered on SEL2, which was the comparative value of "I". Remember, the "I" comparative value must be associated with the logic ID number specified on SEL1, or 02.

Consider what would happen if we had made both entries on one SEL2. The conditional statement would have been legal status equal to I AND I. Since an enforcement action can have only one legal status, none of the records on the file would have met both criteria. As a consequence, we would get a blank report.

IV.159-IV.160



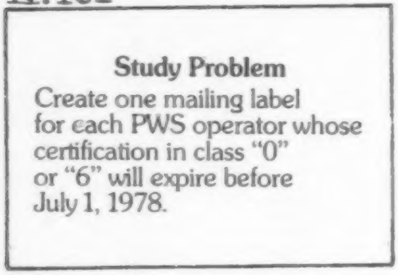
Study Problem

Generate enforcement action case histories for those actions whose legal status is either "not a legal action" or "initial action pending." Arrange the report in ascending order by the PWS-ID.

To summarize, we used PROC and SORT as usual. Our logic condition was OR so one SEL1 and two SEL 2's were required.

Here is our last problem.

IV.161

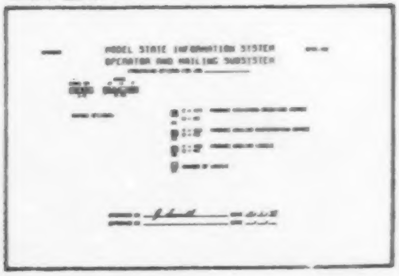


Study Problem

Create one mailing label for each PWS operator whose certification in class "0" or "6" will expire before July 1, 1978.

Our problem is to create one mailing label for each PWS operator whose certification in class "O" or "6" will expire before July 1, 1978. This problem contains both AND and OR conditions. As usual, we will need PROC, SORT, SEL1 and SEL2 input forms.

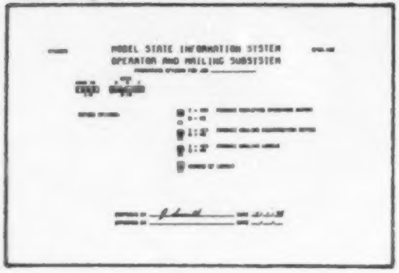
IV.162



MODEL STATE INFORMATION SYSTEM
OPERATOR AND MAILING SUBSYSTEM

This OPER.102 PROC form not only enters the date but also allows for options.

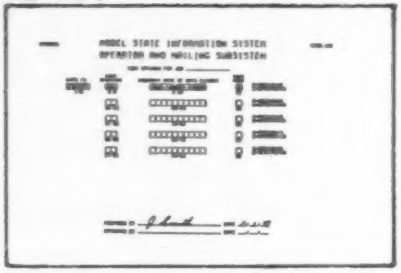
IV.163



MODEL STATE INFORMATION SYSTEM
OPERATOR AND MAILING SUBSYSTEM

Our only requirement within the options indicated is to produce mailing labels. Therefore, a "Y" for yes is entered in position 16, and in position 17 a 1 to produce one label for each record selected.

IV.164

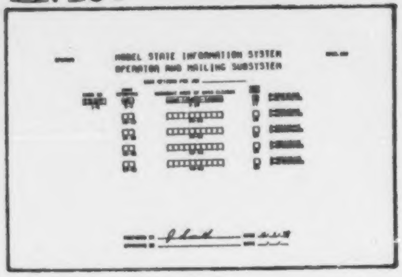


MODEL STATE INFORMATION SYSTEM
OPERATOR AND MAILING SUBSYSTEM

One sorting sequence requires one entry on the SORT form.

Reproduced from best available copy.

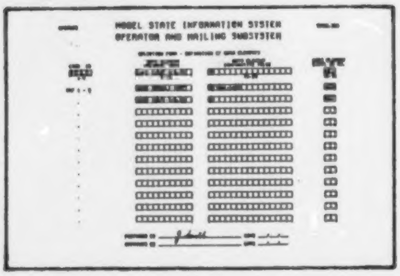
IV.165



MODEL STATE INFORMATION SYSTEM
OPERATOR AND MAILING SUBSYSTEM

OM-ADS-ZIP is the data element mnemonic name from the OMF record layout for zip code. Since no other SORT criterion is specified, any two selected OMF records with the same zip code will be sorted in the sequence of the file; that is, OM-ID. Printing in zip code sequence aids the post office in processing MSIS mailings.

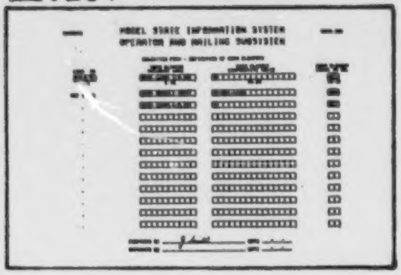
IV.166



MODEL STATE INFORMATION SYSTEM
OPERATOR AND MAILING SUBSYSTEM

There were three conditions specified in the problem. They were PWS operators with a class "O" certification, PWS operators with a class "6" certification, and PWS operators whose certification would expire before July 1, 1978.

IV.167

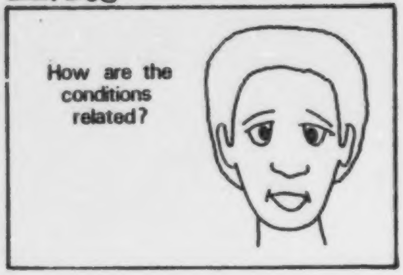


MODEL STATE INFORMATION SYSTEM
OPERATOR AND MAILING SUBSYSTEM

The first and third lines of data entry specify the operator class, with the corresponding data element comparative value of 0 and 6.

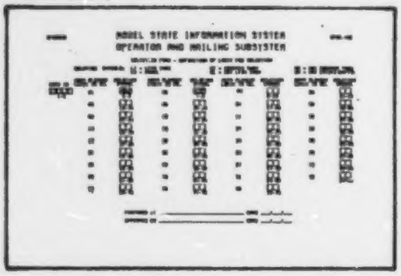
The second line of data entry is for the renewal date of the operator license. The required comparative value is July 1, 1978. The sequence of the entries on this SEL1 does not matter as long as the correct relation symbol is specified on the appropriate SEL2's.

IV.168


How are the conditions related?

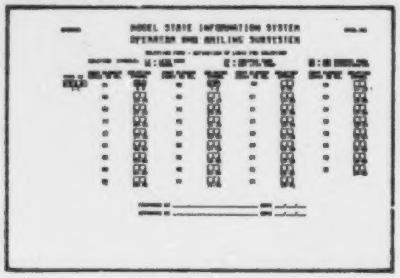
How are the conditions related? Well, to be selected a record must contain a certified operator in class "0" AND one whose certificate renewal date is less than July 1, 1978, OR a certified operator in class "6" AND whose certificate renewal date is less than July 1, 1978.

IV.169


MODEL STATE INFORMATION SYSTEM
OPERATOR AND MAILING SUBSYSTEM

Let's look at the first SEL2.

IV.170



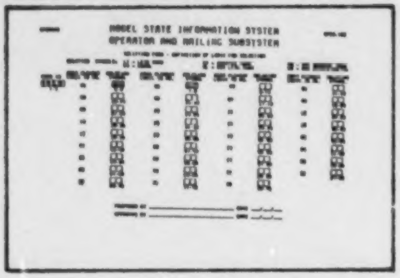
MODEL STATE INFORMATION SYSTEM
OPERATOR AND MAILING SUBSYSTEM

The "01" logic ID on SEL1 was for the class "0" operator and the relation symbol here must be equal in order to select those records.

The second data element was the certificate renewal date. Since we are looking for those certificates whose renewal dates are less than July 1, 1978, our relation symbol for the second logic ID must be LT. That concludes the AND condition that we can specify on a single SEL2.

However, there is also an OR condition. We must also select operators whose certification is class "6" and whose certificate renewal date is less than July 1, 1978. We need another SEL2.

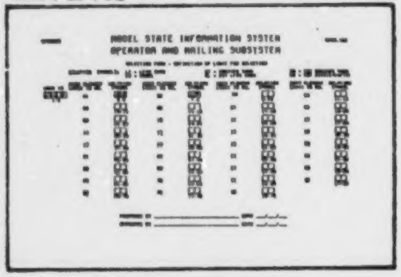
IV.171



MODEL STATE INFORMATION SYSTEM
OPERATOR AND MAILING SUBSYSTEM

This is our second SEL2 form. By using a second SEL2, a record will be selected if either the first or the second pair of conditions is met.

IV.172



MODEL STATE INFORMATION SYSTEM
OPERATOR AND MAILING SUBSYSTEM

In this case the certificate renewal date is also less than July 1, 1978. So, we find the relation symbol shown here as LT, for the "02" data element.

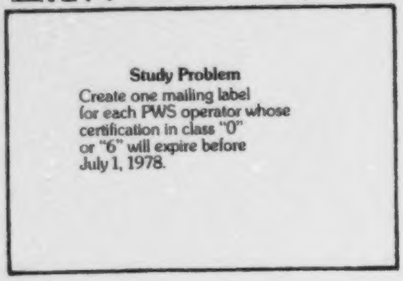
This SEL2 must also satisfy the AND logic, and the operator class must equal "6". To select those records, our relation symbol must be EQ for the "03" data element.

IV.173

!
FEDR?
VAEX
SRVY
18%*
!!
EMAC?
WAQC

I know this has been a complex process. Let's review briefly.

IV.174



Study Problem

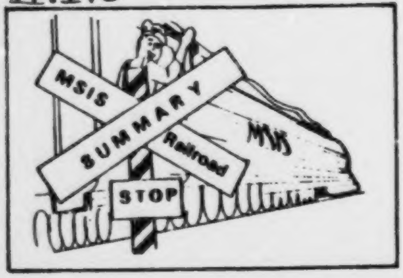
Create one mailing label
for each PWS operator whose
certification in class "0"
or "6" will expire before
July 1, 1978.

First, since our problem had three conditions, we know the logic is not the SIMPLE condition.

Second, we must use the AND condition to select records of operators with the class "0" licenses and whose certificates expire before July 1, 1978.

Third, we also want operators who are class "6" and whose certificates expire before July 1, 1978. Therefore, the OR condition must be used in conjunction with the two AND conditions.

IV.175

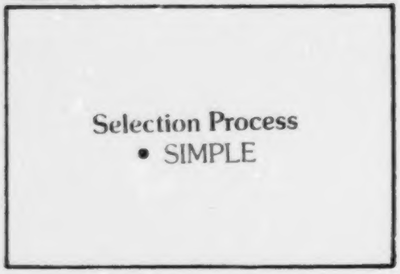


That concludes our study problems.

IV.176

- We really gave that an in-depth look. Remember to think PROC, SORT, SEL. The SEL forms are the most complex and most important. Remember that you must use the proper logic to select records. Although MSIS is programmed to catch many types of errors, it cannot detect an error in the user's logic.

IV.177



Selection Process
- SIMPLE

Let's look again at the SIMPLE, AND and OR conditional statements. The SIMPLE condition is one condition for selection. There is one data line entry on SEL1 and one SEL2 is required.

IV.178

Selection Process
- SIMPLE
- AND

Remember, the AND condition means a record must meet two or more conditions to be selected. The AND condition requires one SEL1 and one SEL2 with two or more entries.

IV.179

Selection Process
- SIMPLE
- AND
- OR

The OR condition also contains two or more conditions. Again there is one SEL1 with two entries but a SEL2 is required for each conditional statement connected by an OR condition.

IV.180

That not only concludes our Problem exercises, but also concludes this Unit, this Course, and in fact, the MSIS Slide-Cassette Training Program.

IV.181

Review/Exercises

Turn to your workbooks for the...

IV.182

Refer to: IV.1.E2
IV.1.A2

...concluding exercise shown here.

STOP TAPE . . . COMPLETE REVIEW/EXERCISES

IV.183

Post Test

Don't forget the post-test. Remember that the User's Manual contains more in-depth information and examples of all of the material that we have covered.

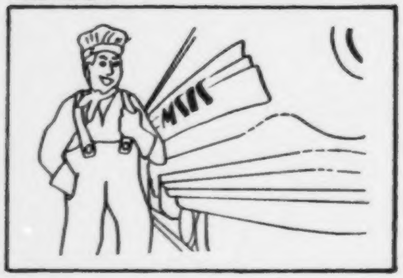
IV.184

Refer to: IV.2.T1

IV.185

Well, the MSIS Train has run out of track, steam, and coal. The last form has been "input" and the last report "output". It remains only to interpret the flock of error reports that we have encountered along the way.

IV.186



Seriously, the MSIS Train has come full circle. Our journey is complete. I hope that our goal of helping you to better understand and utilize MSIS has been realized.

NOTES

IV.1.T1
41T1
(1-4)

PRE-TEST

SELECTION PROCESS

Name: ________________ (5-30) Postal Code ______ (31-2) Date ___/___/___ Month Day Year (33-8)

1. Match the types of input forms with their function:
(A given form may be matched with more than one function)

Form

a. Processing option
b. Table creation
c. Record creation & maintenance
d. Water quality transactions

Function

(39)_____enter sample and analysis data
(40)_____enable the user to specify needed reports
(41)_____enter data into MSIS tables
(42)_____enable the user to specify a needed PWS listing
(43)_____enter PWS-related data to a file

2. Circle T (True) or F (False) for the following statements:

T F (44) "PROC" is a processing option input form used both to initiate a program and to specify the subsystem to be run.

T F (45) "SORT" is a processing option input form used to specify a desired sequence of records for output.

T F (46) "SEL1" or "SEL2" is the processing option input form used to select records from MSIS files.

T F (47) Record creation and maintenance forms are used to enter sample and analysis data.

T F (48) The Sort Sequence numbers must be entered on the "SORT" form in ascending consecutive sequence.

T F (49) The Sort Mode must be specified as either an ascending or a descending order.

T F (50) The Data Element Logic ID number on "SEL1" and "SEL2" is used only to associate the information on the two forms.

T F (51) The Logic ID's entered on "SEL1" must be in ascending consecutive sequence.

T F
(5) The Sanitary Survey PROC form is used to enter the results of a sanitary survey.

T F
(6) The Sanitary Survey SORT form is required when scheduling sanitary surveys.

T F
(7) The "and" conditional statement means a record will be selected if it fulfills all the requirements specified.

T F
(8) The "and" and "or" conditional statements may be entered simultaneously to select records.

3. Circle all of the following that are true:

(9) a. the maximum number of SEL1 entries is 35.
(10) b. the maximum number of SEL2 entries is 35.
(11) c. the maximum number of SEL2's that may be entered in one selection run is 35.

4. Circle all of the following statements which describe what the PROC form can specify.

(12) a. the date of the output
(13) b. the period covered by the output
(14) c. the criteria for selecting records for output
(15) d. report options
(16) e. standard error processing options
(17) f. which State the output is from
(18) g. the order of the output
(19) h. the purge date of a file

5. Circle all of the following which must be specified on the SORT form to perform its function.

(20) a. ascending or descending order
(21) b. the value of the data element to be used
(22) c. the data element to be used
(23) d. the sequence of the data elements to be used
(24) e. relation symbols

6. Circle all of the following which must be specified on the SEL1 form to perform its function.

(25) a. ascending or descending order
(26) b. the value of the data element to be used

(27) c. the data elements to be used
(28) d. the sequence of the data elements to be used
(29) e. relation symbols

7. Circle all of the following which must be specified on the SEL2 form to perform its function.

(30) a. ascending or descending order
(31) b. the value of the data element to be used.
(32) c. the data elements to be used
(33) d. the sequence of the data elements to be used
(34) e. relation symbols

8. Rate your current level of knowledge about MSIS. (Circle one)

(35) None (36) A little (37) Some (38) Quite a bit
(39) Great deal

IV.1.E1

PROC and SORT

PWSI.113

1. State the purpose of the entries in positions 1-4 ____________________

____

____

2. State the purpose of entries in positions 5-10 ____________________

____

3. Circle the best valid entry.

60177 121577 006178 MY1078

4. State the purpose of the entries in positions 14-17 ____________________

____

____

5. Circle the group of best valid entries.

Y	Y	N	N
Y	Y	N	Y
Y	N	L	N
2	4	1	0

PWSI.100

1. State the purpose of the entries in positions 1-4 ____________________

____

____

2. State the purpose of entries in positions 5-6, 18-19, 31-32, 44-45, and 57-58. ____________________

____

3. Circle the group of best valid entries.

1	01	01	05
2	02	02	04
3	03	03	03
4	03	04	02
5	06	05	01

PWSI.100 (con't)

4. State the purpose of entries in positions 7-16, 20-29, 33-42, 46-55, and 59-68. ______________________________
____
____

5. Circle the group of best valid entries.

PWF-PLANT-TYPE	SH-FILE-ID	1	PW-PL-TYPE
PWF-PLANT-CYCLE	SH-REC-ID	2	PW-PL-CYCL
PWF-PLANT-STORAGE	SH-LST-UP	3	PW-PL-STCA
PWF-PLANT-PRODUCTION	SH-CUR-UP	4	PW-PL-MAXP
PWS-IDENTIFICATION	SH-OLD-VAL	5	PW-ID

6. State the purpose of entries in positions 17, 30, 43, 56, 69. ______
____

7. Circle the group of best valid entries.

A	1	A	E
B	2	A	D
C	3	D	C
D	4	D	B
E	5	A	A

MODEL STATE INFORMATION SYSTEM

PUBLIC WATER SYSTEM INVENTORY SUBSYSTEM

PROCESSING OPTIONS FOR JOB ________________

CARD ID
| P | R | O | C |
1-4

DATE
M D Y
☐☐☐☐☐☐
5-10

SELECT THE CODE FOR THE TYPE OF REPORT TO BE PRINTED:

PWSI030: ☐ 14
Y = YES, PRODUCE CONDENSED REPORT
N = NO REPORT IS PRODUCED

PWSI040: ☐ 15
Y = YES, PRODUCE PRODUCTION AND CAPACITY DATA REPORT
N = NO REPORT IS PRODUCED

PWSI050: ☐ 16
Y = YES, PRODUCE STATE DISCRETIONARY DATA REPORT
N = NO REPORT IS PRODUCED

PWSI060: ☐ 17
1 = NO REPORT IS PRODUCED
2 = YES, PRODUCE THE STATUS AND ENTRY FORM
(TURNAROUND DOCUMENT)
3 = YES, PRODUCE COMPREHENSIVE REPORT

PREPARED BY ______________________________ DATE ___/___/___

APPROVED BY ______________________________ DATE ___/___/___

PWSI030,040,
050,060,
070,080

MODEL STATE INFORMATION SYSTEM
PUBLIC WATER SYSTEM INVENTORY SUBSYSTEM

SORT OPTIONS FOR JOB ________________

CARD ID	SORT SEQUENCE	MNEMONIC NAME OF DATA ELEMENT	SORT MODE	
S O R T 1-4	☐☐ 5-6	☐☐☐☐☐☐☐☐☐☐ 7-16	☐ 17	A=ASCENDING D=DESCENDING
	☐☐ 18-19	☐☐☐☐☐☐☐☐☐☐ 20-29	☐ 30	A=ASCENDING D=DESCENDING
	☐☐ 31-32	☐☐☐☐☐☐☐☐☐☐ 33-42	☐ 43	A=ASCENDING D=DESCENDING
	☐☐ 44-45	☐☐☐☐☐☐☐☐☐☐ 46-55	☐ 56	A=ASCENDING D=DESCENDING
	☐☐ 57-58	☐☐☐☐☐☐☐☐☐☐ 59-68	☐ 69	A=ASCENDING D=DESCENDING

PREPARED BY ______________________________ DATE ___/___/___

APPROVED BY ______________________________ DATE ___/___/___

SEL1 and SEL2

PWSI.107

1. State the purpose of the entries in positions 1-4.

2. State the purpose of entries in positions 5-14.

3. Circle the best valid entry.

    PW-ID   SH-FILE-ID   PWS-ID   CODE-ID

4. State the purpose of entries in positions 15-29.

5. Circle the best valid entry.

    PWS-ID   0000000   GT   12345678910111213

6. State the purpose of entries in positions 30-31.

7. Circle the best valid entry

    10   GT   1   01

8. What is the purpose of the remaining lines on the form?

IV.1.E2

PWSI.108

1. State the purpose of the entry in positions 1-4.

____

____

2. State the purpose of the "Data Element Logic ID No.". ____________

____

3. State the purpose of entries in positions 5-6.

____

____

4. Circle the best valid entry.

EQ GR < 01

5. What is the purpose of the remaining positions on the form? ________

____

____

PWSI020.080

MODEL STATE INFORMATION SYSTEM

PWSI.107

PUBLIC WATER SYSTEM INVENTORY SUBSYSTEM

SELECTION FORM - DEFINITION OF DATA ELEMENTS

CARD ID	DATA ELEMENT MNEMONIC NAME	DATA ELEMENT COMPARATIVE VALUE	DATA ELEMENT LOGIC ID NO.
S E L 1 1-4	☐☐☐☐☐☐☐☐☐☐ 5-14	☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐ 15-29	☐☐ 30-31
DUP 1 - 4	☐☐☐☐☐☐☐☐☐☐	☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐	☐☐
.	☐☐☐☐☐☐☐☐☐☐	☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐	☐☐
.	☐☐☐☐☐☐☐☐☐☐	☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐	☐☐
.	☐☐☐☐☐☐☐☐☐☐	☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐	☐☐
.	☐☐☐☐☐☐☐☐☐☐	☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐	☐☐
.	☐☐☐☐☐☐☐☐☐☐	☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐	☐☐
.	☐☐☐☐☐☐☐☐☐☐	☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐	☐☐
.	☐☐☐☐☐☐☐☐☐☐	☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐	☐☐
.	☐☐☐☐☐☐☐☐☐☐	☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐	☐☐
.	☐☐☐☐☐☐☐☐☐☐	☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐	☐☐
.	☐☐☐☐☐☐☐☐☐☐	☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐	☐☐
.	☐☐☐☐☐☐☐☐☐☐	☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐	☐☐

PREPARED BY ______________________________ DATE ___/___/___

APPROVED BY ______________________________ DATE ___/___/___

PWSI020.080 PWSI.108

MODEL STATE INFORMATION SYSTEM

PUBLIC WATER SYSTEM INVENTORY SUBSYSTEM

SELECTION FORM - DEFINITION OF LOGIC FOR SELECTION

RELATION SYMBOLS:
LT = LESS THAN
EQ = EQUAL
GT = GREATER THAN
NL = NOT LESS THAN
NG = NOT GREATER THAN
NX = NOT EXISTS (EMPTY)

CARD ID	DATA ELEMENT LOGIC ID NO.	RELATION SYMBOL	DATA ELEMENT LOGIC ID NO.	RELATION SYMBOL	DATA ELEMENT LOGIC ID NO.	RELATION SYMBOL	DATA ELEMENT LOGIC ID NO.	RELATION SYMBOL
S E L 2 1-4	01	☐☐ 5-6	02	☐☐ 7-8	03	☐☐ 9-10	04	☐☐ 11-12
	05	☐☐ 13-14	06	☐☐ 15-16	07	☐☐ 17-18	08	☐☐ 19-20
	09	☐☐ 21-22	10	☐☐ 23-24	11	☐☐ 25-26	12	☐☐ 27-28
	13	☐☐ 29-30	14	☐☐ 31-32	15	☐☐ 33-34	16	☐☐ 35-36
	17	☐☐ 37-38	18	☐☐ 39-40	19	☐☐ 41-42	20	☐☐ 43-44
	21	☐☐ 45-46	22	☐☐ 47-48	23	☐☐ 49-50	24	☐☐ 51-52
	25	☐☐ 53-54	26	☐☐ 55-56	27	☐☐ 57-58	28	☐☐ 59-60
	29	☐☐ 61-62	30	☐☐ 63-64	31	☐☐ 65-66	32	☐☐ 67-68
	33	☐☐ 69-70	34	☐☐ 71-72	35	☐☐ 73-74		

PREPARED BY ______________________________ DATE __/__/__

APPROVED BY ______________________________ DATE __/__/__

PROC and SORT

PWSI.113

1. State the purpose of the entries in positions 1-4 to identify the type of processing option to the computer - PROC.

2. State the purpose of entries in positions 5-10 to identify the date of the request and/or the date of the report generated.

3. Circle the best valid entry

   60177 [✓ 121577] 006178 MY1078

4. State the purpose of the entries in positions 14-17 to specify the report(s) desired, if any.

5. Circle the best valid entry

[✓ Y]	Y	N	N
[✓ Y]	Y	N	Y
[✓ Y]	N	1	N
[✓ 2]	4	1	0

PWSI.100

1. State the purpose of the entries in positions 1-4 to identify the type of processing option to the computer - SORT.

2. State the purpose of entries in positions 5-6, 18-19, 31-32, 44-45, and 57-58 to specify to the computer the order in which the fields of the records should be used in determining the output sequence.

WSI.100

3. Circle the group of best valid entries

1	01	[✓ 01]	05
2	02	[✓ 02]	04
3	03	[✓ 03]	03
4	03	[✓ 04]	02
5	06	[✓ 05]	01

4. State the purpose of entries in positions 7-16, 20-29, 33-42, 46-55, and 59-68 to identify the fields to the computer that are to be used in determining the output sequence.

5. Circle the group of best valid entries.

PWF-PLANT-TYPE	SH-FILE-ID	1	[✓ PW-PL-TYPE]
PWF-PLANT-CYCLE	SH-REC-ID	2	[✓ PW-PL-CYCL]
PWF-PLANT-STORAGE	SH-LST-UP	3	[✓ PW-PL-STCA]
PWF-PLANT-PRODUCTION	SH-CUR-UP	4	[✓ PW-PL-MAXP]
PWS-IDENTIFICATION	SH-OLD-VAL	5	[✓ PW-ID]

6. State the purpose of entries in positions 17, 30, 43, 56, 69 to specify the order of the data element named in the respective previous positions.

7. Circle the group of best valid entries.

A	1	[✓ A]	E
B	2	[✓ A]	D
C	3	[✓ D]	C
D	4	[✓ D]	B
E	5	[✓ A]	A

IV.1.A2

SEL1 and SEL2

PWSI.107

1. State the purpose of the entries in positions 1-4.

to identify the type of processing option to the computer - SEL1.

2. State the purpose of entries in positions 5-14.

to specify the field of a record to be compared to determine selection.

3. Circle the best valid entry.

[✓ PW-ID]   SH-FILE-ID   PWS-ID   CODE-NO

4. State the purpose of entries in positions 15-29.

to specify the valid value of the data element specified with which a record must have a specified relationship to meet the condition.

5. Circle the best valid entry.

PWS-ID   [✓ 0000000]   GT   12345678910111213

6. State the purpose of entries in positions 30-31.

to identify the corresponding relation symbol on SEL2.

7. Circle the best valid entry.

10   GT   1   [✓ 01]

8. What is the purpose of the remaining lines on the form? to specify more conditions to be used in the selection of records.

SEL1 and SEL2

PWSI.108

1. State the purpose of the entry in positions 1-4.

   to identify the type of processing option to the computer - SEL2.

2. State the purpose of the "Data Element Logic ID No.". to identify the corresponding entry on SEL1.

3. State the purpose of entries in positions 5-6.

   to identify the relationship desired between a record's data element and the value specified on SEL1.

4. Circle the best valid entry.

   [✓ EQ] GR < 01

5. What is the purpose of the remaining positions on the form? to assign additional relationships desired between other data elements or values specified on SEL1.

IV.2.T1
42T1
(1-4)

POST-TEST

SELECTION PROCESS

Name:______________________________ (5-30) Postal Code_____ (31-2) Date____/____/____ Month Day Year (33-8)

1. Match the types of input forms with their function:
(A given form may be matched with more than one function)

Form	Function
a. Processing option	(39)____enter sample and analysis data
b. Table creation	(40)____enable the user to specify needed reports
c. Record creation & maintenance	(41)____enter data into MSIS tables
d. Water quality transactions	(42)____enable the user to specify a needed PWS listing
	(43)____enter PWS-related data to a file

2. Circle T (True) or F (False) for the following statements:

T F (44) "PROC" is a processing option input form used both to initiate a program and to specify the subsystem to be run.

T F (45) "SORT" is a processing option input form used to specify a desired sequence of records for output.

T F (46) "SEL1" or "SEL2" is the processing option input form used to select records from MSIS files.

T F (47) Record creation and maintenance forms are used to enter sample and analysis data.

T F (48) The Sort Sequence numbers must be entered on the "SORT" form in ascending consecutive sequence.

T F (49) The Sort Mode must be specified as either an ascending or a descending order.

T F (50) The Data Element Logic ID number on "SEL1" and "SEL2" is used only to associate the information on the two forms.

T F (51) The Logic ID's entered on "SEL1" must be in ascending consecutive sequence.

T F (8) The Sanitary Survey PROC form is used to enter the results of a sanitary survey.

T F (9) The Sanitary Survey SORT form is required when scheduling sanitary surveys.

T F (10) The "and" conditional statement means a record will be selected if it fulfills all the requirements specified.

T F (11) The "and" and "or" conditional statements may be entered simultaneously to select records.

3. Circle all of the following that are true:

(12) a. the maximum number of SEL1 entries is 35.
(13) b. the maximum number of SEL2 entries is 35.
(14) c. the maximum number of SEL2's that may be entered in one selection run is 35.

4. Circle all of the following statements which describe what the PROC form can specify.

(15) a. the date of the output
(16) b. the period covered by the output
(17) c. the criteria for selecting records for output
(18) d. report options
(19) e. standard error processing options
(20) f. which State the output is from
(21) g. the order of the output
(22) h. the purge date of a file

5. Circle all of the following which must be specified on the SORT form to perform its function.

(23) a. ascending or descending order
(24) b. the value of the data element to be used
(25) c. the data element to be used
(26) d. the sequence of the data elements to be used
(27) e. relation symbols

6. Circle all of the following which must be specified on the SEL1 form to perform its function.

(28) a. ascending or descending order
(29) b. the value of the data element to be used

(30) c. the data elements to be used
(31) d. the sequence of the data elements to be used
(32) e. relation symbols

7. Circle all of the following which must be specified on the SEL2 form to perform its function.

(33) a. ascending or descending order
(34) b. the value of the data element to be used.
(35) c. the data elements to be used
(36) d. the sequence of the data elements to be used
(37) e. relation symbols

8. Rate your current level of knowledge about MSIS. (Circle one)

(38) None (39) A little (40) Some (41) Quite a bit
(42) Great deal

GLOSSARY

Terms are included in this glossary only if their meanings differ from those found in a standard English language dictionary.

Analysis:

The separation of any abstract entity or material into its constituant elements, such as chemical-intentionally produced decomposition or separation of materials into their ingredients to find their kind or quality.

Analysis Method:

The method or technique utilized to obtain analysis results.

Analytical Techniques:

The methods used to determine the components of a substance, especially raw water.

Batch Processing:

A procedure in which a number of transactions, for example on keypunched cards, are accumulated before being processed together.

Check Sampling:

The act of acquiring additional quantities of water for analysis over and above the regular samples due to the suspicion of violating maximum contaminant levels.

Code:

A system used for brevity of communication in which arbitrarily chosen words, letters, or symbols are assigned definite meanings.

Computer:

A machine which accepts input data, processes it, and gives output data.

Computer Program:

A sequence of computer-readable instructions used in conjunction with appropriate data to perform specified logical tasks.

Correction:

Additions, subtractions, or changes to a computer file.

Course:

All content taught in one individual MSIS training program volume. A course is subdivided into units.

Data:

Raw facts or statistics which alone have little or no meaning, but as a group allow some meaningful relationships to be drawn.

Data Element:

An identifiable item of information within a record. See the Data Element Dictionary for all data elements used in MSIS.

Data Processing:

The act of manipulating information to obtain a desired result, especially with the use of a computer.

Economical:

Of or pertaining to the financial reasons for granting variances and exemptions.

Enforcement:

The act of creating and maintaining compliance using coercive methods.

Enforcement Action:

An act intended to generate compliance.

Exemption:

Authorized waiver of an MCL requirement due to compelling factors, such as need for a PWS to design and build effective treatment facilities.

Field:

See data element.

File:

A collection of records systematically arranged to facilitate quick reference; may be stored on magnetic tape or magnetic disc.

Goal:

A general achievement toward which effort is directed.

Gross Alpha:

A group of substances which emit Alpha particle radiation.

Gross Beta:

A group of substances which emit Beta particle radiation.

Hardware:

The physical equipment in a data processing system (contrasted with software).

Information:

Data that has been processed to obtain specific results which increase knowledge of the recipient and is used as the basis for decision making.

Inorganic:

Of or pertaining to substances that are not hydrocarbons or their derivatives.

Input:

Information which is specially prepared for acceptance by computer programs. Usually written down on special forms, then put into machine-readable form by, for example, keypunching.

Integrity:

Presumed reliability of data.

Internal:

Data processing occurring within the computer automatically according to instructions from computer programs.

Inventory:

A detailed, descriptive list, for example, of Public Water Systems.

Magnetic Disc:

A device which stores data on the magnetizable surfaces of one or more rotating discs, which look like a stack of phonograph records.

Magnetic tape:

A device which stores data on the magnetizable surface of a long strip of tape (the tape is typically 1 inch wide and 2400 feet long).

Maintain:

Actions taken to ensure up-to-date computer files.

Management Information System:

An organized method of maintaining facts pertinent to the governing of the operations of an organization.

Model State Information System:

(MSIS) a batch computer system designed to (1) maintain records on public water systems and the quality of the water they supply, and (2) prepare reports.

Monitor:

The acts of (1) a PWS observing and checking water quality or (2) a State observing and checking PWSs.

National Inventory File:

A computerized list of many public water systems in the United States; previously used to monitor water quality.

Objective:

A specific achievement that efforts are intended to attain.

Online Processing:

A procedure for inputting data computer whenever needed for immediate data processing, often by typewriter terminal.

Operator:

One who runs a public water system.

Organic:

Of or pertaining to substances that are hydrocarbons or their derivatives.

Output:

Any information passed from the computer.

Primacy:

Primary enforcement responsibility for carrying out the Safe Drinking Water Act of 1974.

Public Water System (PWS):

A set of components for the provision of piped water to persons for human consumption, if such facility has at least fifteen service connections or regularly serves at least twenty-five individuals 60 or more days per year.

Purge:

To remove from a computer those items no longer desired.

Raw Water:

Water at the source before any treatment.

Record:

A logical group of data elements.

Regulations:

Rules created by EPA within the guidelines established by the SDWA and having the same authority.

Report:

Information formatted by the computer in either human-readable form (such as a printed report) or machine-readable form (such as a magnetic tape).

Sample:

A portion of the whole to represent the whole, especially water.

Sanitary Survey:

An on-site review of the water source, facilities, equipment, operation, and maintenance of a public water system for the purpose of evaluating the adequacy of such source for producing and distributing safe drinking water.

Selection Process:

The method used by MSIS for selecting information from a computer file for use in a report. Many different criteria can be used in the selection of the data.

Software:

The computer programs required for the computer to work.

Subsystem:

A subset of the MSIS computer system. There are nine MSIS subsystems.

System:

A method or methods of accomplishing a function or functions, especially with a computer.

Table:

A computer file of brief information usually set up in logical relationships to permit quick access, often on magnetic disc.

Turnaround Document:

A form containing computer-printed information which needs additional information written on it; called "turnaround" since it is both an output and an input.

Unit:

A subset of teaching material within a course.

Variance:

Authorized deviation from an applicable national drinking water regulation because characteristics of the raw water source cannot be corrected by available means.

List of Abbreviations

Abbreviation	Meaning
BIP	Background Informational Package
CVT	Code Value Table
DET	Data Element Table
DVF	Deviations File
EAF	Enforcement Actions File
EMT	Error Message Table
ENAC	Enforcement Actions Subsystem
EPA	Environmental Protection Agency
FEDR	Federal Reporting Subsystem
LBT	Laboratory Table
MCL	Maximum Contaminant Level
MSIS	Model State Information System; also MSIS Standard Processing Subsystem
NIF	National Inventory File
NIPDWR	National Interim Primary Drinking Water Regulations
OMF	Operator and Mailing File
OPER	Operator and Mailing Subsystem
OWS	Office of Water Supply
PSF	Periodic Sample and Analysis File
PWF	Public Water System File
PWS	Public Water System
PWSI	Public Water System Inventory Subsystem
PWT	Public Water System Table
REGS	Regulations Subsystem

RGF	Regulations File
SAF	Sample and Analysis File
SDWA	Safe Drinking Water Act
SHF	MSIS Standard History File
SRVY	Sanitary Survey Subsystem
VAEX	Variances and Exemptions Subsystem
VEF	Variances and Exemptions File
VIF	Violations File
WAQC	Water Quality Compliance Subsystem

EXTRACTS FROM
MSIS DOCUMENTS

MODEL STATE INFORMATION SYSTEM
DATA ENTRY INSTRUCTIONS

SOURCE DOCUMENT NAME: SORT Options for Job	**EXHIBIT:** WAQC.104
PURPOSE: To determine the sequence in which output files from programs WAQC010,040,041, 050,051,060,061,070,080,090,110,111,112,113 will be sorted.	**LEGEND:** A=Alpha Numeric A/N=Alphanumeric PRE/0= RJ=Right Justify Preced LJ=Left Justify Zero

CARD COL. FROM	CARD COL. TO	INPUT DOCUMENT NAME	DESCRIPTION	ADDITIONAL INSTRUCTIONS
			At top of form enter the job identification as assigned by computer operations or scheduling.	
1	4	Card ID	Represents the Card Identifier for Sort Processing Options. Preprinted on the form as "SORT".	
5	6	Sort Sequence	Enter a two-digit number indicating the priority of the Data Element specified in Columns 7-16 in determining the sort of output records or reports. The lowest number determines the first data element to be used in sorting records. The second lowest number determines the next data element to be used in sorting records and so on. Start with Sort Sequence of '01' and continue with '02', '03' in sequence as needed.	N

MODEL STATE INFORMATION SYSTEM
DATA ENTRY INSTRUCTIONS

SOURCE DOCUMENT NAME: SORT Options for Job	**EXHIBIT:** WAQC.104
PURPOSE: To determine the sequence in which output files from programs WAQC010,040,041,050,051,060,061,070,080,090,110,111,112,113 will be sorted.	**LEGEND:** A=Alpha N=Numeric A/N=Alphanumeric PRE/0= RJ=Right Justify Preced LJ=Left Justify Zero

CARD COL. FROM	CARD COL. TO	INPUT DOCUMENT NAME	DESCRIPTION	ADDITIONAL INSTRUCTIONS
7	16	Mnemonic Name of Data Element	Enter the Mnemonic Name of the Data Element to be used as a sort field.	A/N,LJ
17	17	Sort Mode	Enter 'A' for an ascending sequence or 'D' for a descending sequence for the Data Element specified in Columns 7-16. Ascending means that smaller or lower values will be sorted first. Example: 1,2,3,4 or A,B,C. Descending will cause the reverse to occur. Example: Z,Y,X,W.	A
18	19	Sort Sequence	Enter a two-digit number indicating the priority of the Data Element specified in Columns 20-29 in determining the sort of output records or reports.	N

MODEL STATE INFORMATION SYSTEM
DATA ENTRY INSTRUCTIONS

SOURCE DOCUMENT NAME: SORT Options for Job	**EXHIBIT:** WAQC.104
PURPOSE: To determine the sequence in which output files from programs WAQC010,040,041,050,051,060,061,070,080,090,110,111,112,113 will be sorted.	**LEGEND:** A=Alpha N=Numeric A/N=Alphanumeric PRE/0= RJ=Right Justify Precede LJ=Left Justify Zero

CARD COL. FROM	TO	INPUT DOCUMENT NAME	DESCRIPTION	ADDITIONAL INSTRUCTIONS
20	29	Mnemonic Name of Data Element	Enter the Mnemonic Name of a Data Element to be used as a sort field.	A/N,LJ
30	30	Sort Mode	Enter 'A' for an ascending sequence or 'D' for a descending sequence of the Data Element specified in Columns 20-29.	A
31	32	Sort Sequence	Enter a two-digit number indicating the priority of the Data Element specified in Columns 33-42 in determining the sort of output records or reports.	N
33	42	Mnemonic Name of Data Element	Enter the Mnemonic Name of a Data Element to be used as a sort field.	A/N,LJ

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MODEL STATE INFORMATION SYSTEM
DATA ENTRY INSTRUCTIONS

SOURCE DOCUMENT NAME: SORT Options for Job	**EXHIBIT:** WAQC.104
PURPOSE: To determine the sequence in which output files from programs WAQC010,040,041, 050,051,060,061,070,080,090,110,111,112,113 will be sorted.	**LEGEND:** A=Alpha N=Numeric A/N=Alphanumeric PRE/0= RJ=Right Justify Preced LJ=Left Justify Zero

CARD COL. FROM	CARD COL. TO	INPUT DOCUMENT NAME	DESCRIPTION	ADDITIONAL INSTRUCTIONS
43	43	Sort Mode	Enter 'A' for an ascending sequence or 'D' for a descending sequence of the Data Element specified in Columns 33-42.	A
44	45	Sort Sequence	Enter a two-digit number indicating the priority of the Data Element specified in Columns 46-55 in determining the sort of output records or reports.	N
46	55	Mnemonic Name of Data Element	Enter the Mnemonic Name of a Data Element to be used as a sort field.	A/N,LJ
56	56	Sort Mode	Enter 'A' for an ascending sequence or 'D' for a descending sequence of the Data Element specified in Columns 46-55.	A

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MODEL STATE INFORMATION SYSTEM

DATA ENTRY INSTRUCTIONS

SOURCE DOCUMENT NAME: SORT Options for Job	**EXHIBIT:** WAQC.104
PURPOSE: To determine the sequence in which output files from programs WAQC010,040,041, 050,051,060,061,070,080,090,110,111,112,113 will be sorted.	**LEGEND:** A=Alpha N=Numeric A/N=Alphanumeric PRE/0= RJ=Right Justify Precede LJ=Left Justify Zero

CARD COL. FROM	CARD COL. TO	INPUT DOCUMENT NAME	DESCRIPTION	ADDITIONAL INSTRUCTIONS
57	58	Sort Sequence	Enter a two-digit number indicating the priority of the Data Element specified in Columns 59-68 in determining the sort of output records or reports.	N
59	68	Mnemonic Name of Data Element	Enter the Mnemonic Name of a Data Element to be used as a sort field.	A/N,LJ
69	69	Sort Mode	Enter 'A' for an ascending sequence or 'D' for a descending sequence of the Data Element specified in Columns 59-68.	A

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MODEL STATE INFORMATION SYSTEM
DATA ENTRY INSTRUCTIONS

SOURCE DOCUMENT NAME: Selection Form - Definition of Data Elements	**EXHIBIT:** WAOC 116
PURPOSE: To determine the records to be selected from the Sample Analysis File (SAF) or Violations File (VIF).	**LEGEND:** A=Alpha N=Numeric A/N=Alphanumeric PRE/0= RJ=Right Justify Precede LJ=Left JJustify Zero

CARD COL. FROM	CARD COL. TO	INPUT DOCUMENT NAME	DESCRIPTION	ADDITIONAL INSTRUCTIONS
1	4	Card ID	Represents the Card Identifier for the data element selection form. Preprinted on the form as "SEL1".	
5	14	Data Element Mnemonic Name	Enter the mnemonic name of the data element which will be used to determine record selection. Must be entered.	A/N,LJ
15	29	Data Element Comparative Value	Enter the value for the previously specified data element which will be used to determine record selection.	A/N,LJ
30	31	Data Element Logic ID Number	Enter a two digit number. This number must be unique for each SEL1 record. Valid numbers are 1-35. The number associates the SEL1 record with the logic defined on the SEL2 record.	N
		NOTE: For further explanation review the examples detailed in the Users Manual.		

PAGE 1 OF 1

MODEL STATE INFORMATION SYSTEM
DATA ENTRY INSTRUCTIONS

SOURCE DOCUMENT NAME: Selection Form - Definition of Logic for Selection	**EXHIBIT:** WAQC 117
PURPOSE: To determine the selection logic to be used for the Sample Analysis File (SAF) or Violations File (VIF).	**LEGEND:** A=Alpha N=Numeric A/N=Alphanumeric PRE/0= RJ=Right Justify Precede LJ=Left Justify Zero

CARD COL.		INPUT DOCUMENT NAME	DESCRIPTION	ADDITIONAL INSTRUCTIONS
FROM	TO			
1	4	Card ID	Represents the Card Identifier for Logic Selection. Preprinted on the form as "SEL2".	
5	6	Relation Symbol	Enter one of the valid Relation Symbols defined on the input form. This symbol is a logical operator and defines the desired relationship between the Data Element and the Comparative Value defined on the Data Element Definition Form (SEL1). The Data Element Logic ID number associates the relation symbols to the proper Data Element. Only enter if there is a corresponding "SEL1" entry which has been defined.	A
7	74		Same as Columns 5-6.	A
		NOTE: For further explanation review the examples detailed in the Users Manual.		

PAGE 1 **OF** 1

VII. Standard Error Messages for Processing Options

Any program which uses processing options records may produce any of the following messages:

A. Standard Error Messages & Remedial Actions for PROC Records

MESSAGE: ERROR - TWO PROC RECORDS SUPPLIED
REMEDIAL ACTION: return both records to data entry and re-enter the Processing Options record which is correct.

MESSAGE: ERROR - NO PROCESSING OPTION RECORDS WERE PROVIDED
REMEDIAL ACTION: obtain Processing Options from data entry.

MESSAGE: ERROR - PROC TYPE NOT VALID IN OPTION RECORD
REMEDIAL ACTION: check for keypunch error, if not, return option to data entry.

MESSAGE: ERROR - PROC RECORD CONTAINS AN INVALID DATE
REMEDIAL ACTION: check for keypunch error, if not, return option to data entry.

B. Standard Error Messages & Remedial Actions for SORT Records

MESSAGE: ERROR - MAXIMUM SORT-KEY SIZE HAS BEEN EXCEEDED
REMEDIAL ACTION: return option to data entry.

MESSAGE: ERROR - SORT SEQUENCE FIELD NOT NUMERIC
REMEDIAL ACTION: check for keypunch error, if not return option to data entry.

MESSAGE: ERROR - TWO SORT FIELDS HAVE THE SAME SEQUENCE NUM
REMEDIAL ACTION: check for keypunch error, if not, return option to data entry.

MESSAGE: ERROR - SORT SEQUENCE NUMBER GREATER THAN MAXIMUM
REMEDIAL ACTION: check for keypunch error, if not, return option to data entry.

MESSAGE: ERROR - SORT OPTION MNEMONIC-NAME IS INVALID
REMEDIAL ACTION: check for keypunch error, if not, return option to data entry.

MESSAGE: ERROR - SORT MODE IS NOT ASCENDING OR DESCENDING
REMEDIAL ACTION: check for keypunch error, if not, return option to data entry.

MESSAGE: ERROR - NONCONSECUTIVE SORT SEQUENCE VALUES
REMEDIAL ACTION: check for keypunch error, if not, return option to data entry.

C. Standard Error Messages & Remedial Actions for SEL1 & SEL2 Records

MESSAGE: ERROR - INVALID FILE-ID IN SEL1 RECORD
REMEDIAL ACTION: check for keypunch error, if not, return option to data entry.

MESSAGE: ERROR - TWO SEL1 RECORDS HAVE THE SAME LOGIC ID
REMEDIAL ACTION: check for keypunch error, if not, return option to data entry.

MESSAGE: ERROR - MNEMONIC NAME IS SEL1 RECORD IS INVALID
REMEDIAL ACTION: check for keypunch error, if not, return option to data entry.

MESSAGE: ERROR - SEL1 VALUE TOO LONG FOR SPECIFIED MNEMONIC
REMEDIAL ACTION: check for keypunch error, if not return option to data entry.

MESSAGE: ERROR - NO SEL1 OPTION RECORD WAS PROVIDED
REMEDIAL ACTION: return all options to data entry.

MESSAGE: ERROR - LOGIC ID NOT 1 THRU 35 IN SEL1 RECORD
REMEDIAL ACTION: check for keypunch error, if not, return option to data entry.

MESSAGE: ERROR - SEL1 DATE-FIELD VALUE IS NOT A VALID DATE
REMEDIAL ACTION: check for valid six character date, if not, return option to data entry.

MESSAGE: ERROR - SEL1 CATALOGUE-NUMBER VALUE NOT NUMERIC
REMEDIAL ACTION: check for keypunch error, if not, return option to data entry.

MESSAGE: ERROR - SEL2 OPERAND HAS NO MATCHING SEL1 RECORD
REMEDIAL ACTION: return all options to data entry.

MESSAGE: ERROR - NO SEL2 OPTION RECORD WAS PROVIDED
REMEDIAL ACTION: return all options to data entry.

MESSAGE* ERROR - MORE THAN 35 SEL2 RECORDS WERE PROVIDED
REMEDIAL ACTION: return all options to data entry.

MESSAGE: ERROR - SEL2 RECORD HAS INVALID RELATIONAL SYMBOL
REMEDIAL ACTION: check for keypunch error, if not, return option to data entry.

MODEL STATE INFORMATION SYSTEM
DATA ENTRY INSTRUCTIONS

SOURCE DOCUMENT NAME: Processing Options for Job	**EXHIBIT:** SRVY.100
PURPOSE: To determine the Processing Options for Program SRVY010	**LEGEND:** A=Alpha N=Numeric A/N=Alphanumeric PRE/0= RJ=Right Justify Precede LJ=Left Justify Zero

CARD COL. FROM	CARD COL. TO	INPUT DOCUMENT NAME	DESCRIPTION	ADDITIONAL INSTRUCTIONS
			At top of form enter the job	
			identification as assigned by	
			Computer Operations or Scheduling.	
1	4	Card ID	Represents the Card Identifier	
			for Processing Options. Preprinted	
			on the form as "PROC".	
5	10	Date	Enter the Current date. Must be	N
			entered as MMDDYY, where MM is the	
			month, DD is the day and YY is the	
			year.	
11	12	Type of	Enter the Priority Selection	N
		Water	Weight for the type of water	
		Supply	supply. Legal values are 0.0 thru	
			1.0	
13	14	Population	Enter the Priority Selection Weight	N
		Served	for the Population served.	
			Legal values are 0.0 thru 1.0	

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MODEL STATE INFORMATION SYSTEM

DATA ENTRY INSTRUCTIONS

SOURCE DOCUMENT NAME: Processing Options for Job	**EXHIBIT:** SRVY.100
PURPOSE: To determine the Processing Options for Program SRVY010	**LEGEND:** A=Alpha N=Numeric A/N=Alphanumeric PRE/0= RJ=Right Justify Precede LJ=Left Justify Zero

CARD COL. FROM	CARD COL. TO	INPUT DOCUMENT NAME	DESCRIPTION	ADDITIONAL INSTRUCTIONS
15	16	History	Enter the Priority Selection Weight	N
		of Past	for Violation History. Legal	
		Violations	Values are 0.0 thru 1.0	
17	18	Date of	Enter the Priority Selection Weight	N
		Last	for the date of the last Sanitary	
		Sanitary	Survey. Legal Values are 0.0	
	–	Survey.	thru 1.0	
19	20	Type of	Enter the Priority Selection weight	N
		Source	for the type of Source Water.	
		Water	Legal Values are 0.0 thru 1.0	
			The sum total of the five selection	
			weights must equal 1.0	
21	21	Priority	Enter "Y" to produce the Priority	A
		Report	Report. Enter "N" to suppress the	
			report.	

MODEL STATE INFORMATION SYSTEM
DATA ENTRY INSTRUCTIONS

SOURCE DOCUMENT NAME: Processing Options for Job	**EXHIBIT:** SRVY.100
PURPOSE: To determine the Processing Options for Program SRVY101	**LEGEND:** A=Alpha N=Numeric A/N=Alphanumeric PRE/0= RJ=Right Justify Precede LJ=Left Justify Zero

CARD COL. FROM	TO	INPUT DOCUMENT NAME	DESCRIPTION	ADDITIONAL INSTRUCTIONS
22	22	Schedule	Enter "Y" to produce the Schedule	A
		Report	Report. Enter "N" to suppress the	
			report.	
23	23	Priority	Enter the Code for the type of	N
		Option	Priority Option desired. The Codes	
			and their meanings are:	
			1 = The reports will cover the	
			entire state.	
			2 = The reports will cover only	
			specific regions and/or dis-	
			tricts as specified in columns	
			28 - 47.	
			3 = The reports will distribute the	
			number of Sanitary Surveys	
			equally among all districts or	
			regions in the state.	

PAGE 3 OF 5

MODEL STATE INFORMATION SYSTEM
DATA ENTRY INSTRUCTIONS

SOURCE DOCUMENT NAME: Processing Options for Job	**EXHIBIT:** SRVY.100
PURPOSE: To determine the Processing Options for Program SRVY010	**LEGEND:** A=Alpha N=Numeric A/N=Alphanumeric PRE/0= RJ=Right Justify Precede LJ=Left Justify Zero

CARD COL. FROM	CARD COL. TO	INPUT DOCUMENT NAME	DESCRIPTION	ADDITIONAL INSTRUCTIONS
24	27	Surveying Capacity	Enter the number of surveys which the specified surveying authority has the capability of performing within the specified period. Enter blanks to specify an unlimited capacity.	A/N
28	47	Region/ District	Enter the specific regions and districts to be surveyed. If column 23 is not equal to "2', these fields must be blank. If column 23 is equal to "2', one of these fields must be non-blank.	A/N
48	59	Surveying Period	Enter the period during which the Sanitary Surveys are to be scheduled. The From date and the To date must be entered in the form MMDDYY where MM is the month, DD is the day and YY is the year.	N

MODEL STATE INFORMATION SYSTEM
DATA ENTRY INSTRUCTIONS

SOURCE DOCUMENT NAME: Processing Options for Job	**EXHIBIT:** SRVY.100
PURPOSE: To determine the Processing Options for Program SRVY010	**LEGEND:** A=Alpha N=Numeric A/N=Alphanumeric PRE/0= RJ=Right Justify Precede LJ=Left Justify Zero

CARD COL. FROM	CARD COL. TO	INPUT DOCUMENT NAME	DESCRIPTION	ADDITIONAL INSTRUCTIONS
60	60	PWF Report Option	Enter one of the valid PWF report options as shown on the Data Entry Form. If column 28 is equal to "N", this field must be left blank since this option pertains to those Public Water System Records that will be shown on the Schedule Report.	A/N

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MODEL STATE INFORMATION SYSTEM
DATA ENTRY INSTRUCTIONS

SOURCE DOCUMENT NAME: Sampling Scheduling Input Form	EXHIBIT: WAQC.124
PURPOSE: Used to determine what sample schedule output is to be produced for each Public Water System (PWS), for Program WAQC130	LEGEND A=Alpha N=Numeric A/N=Alphanumeric PRE/0= RJ=Right Justify Precede LJ=Left Justify Zero

CARD COL. FROM	CARD COL. TO	INPUT DOCUMENT NAME	DESCRIPTION	ADDITIONAL INSTRUCTIONS
1	7	PWS-ID	Enter the Public Water System (PWS) identifcation Number for the PWS to be scheduled. Must be entered.	N, RJ, PRE/0
8	8	Turbidity	Enter a 'Y' if Turbidity samples are to be scheduled for this PWS. If Turbidity scheduling is not desired, enter an 'N' or leave blank. If not entered, a default of 'N' is assumed.	A
9	9	Chemicals	Enter a 'Y' if chemical samples are to be scheduled for this PWS. If chemical scheduling is not desired, enter an 'N' or leave blank. If not entered, a default of 'N' is assumed.	A
10	10	Bacteriological	Enter a 'Y' if Bacteriological samples are to be scheduled for this PWS. If Bacteriological Scheduling is not desired, enter an 'N' or leave blank. If not entered, a default of 'N' is assumed.	A

PAGE 1 OF 4

MODEL STATE INFORMATION SYSTEM
DATA ENTRY INSTRUCTIONS

SOURCE DOCUMENT NAME: Sampling Scheduling Input Form	EXHIBIT: WAQC.124
PURPOSE: To determine what sample schedule output is to be produced for each Public Water System (PWS), for Program WAQC130	LEGEND: A=Alpha N=Numeric A/N=Alphanumeric PRE/0= RJ=Right Justify Preced LJ=Left Justify Zero

CARD COL. FROM	CARD COL. TO	INPUT DOCUMENT NAME	DESCRIPTION	ADDITIONAL INSTRUCTIONS
11	11	Natural Radio-Nuclides	Enter a 'y' if Natural Radionuclide samples are to be scheduled for this PWS. If Natural Radionuclide scheduling is not desired, enter an 'N' or leave blank. If not entered, a default of 'N' is assumed.	A
12	12	Man-made Radio-Nuclides	Enter a 'Y' if Man-Made Radionuclide Samples are to be scheduled for this PWS. If Man-Made Radionuclide scheduling is not desired, enter an 'N' or leave blank. If not entered, a default of 'N' is assumed.	A
13	13	Bacteriological Mailing Labels Option	Enter one of the following values if Mailing Labels are desired for those Bacteriological Samples Scheduled for this PWS:	A

PAGE 2 OF 4

MODEL STATE INFORMATION SYSTEM
DATA ENTRY INSTRUCTIONS

SOURCE DOCUMENT NAME:
Sampling Scheduling Input Form

EXHIBIT:
WAQC.124

PURPOSE:
To determine what sample schedule output is to be produced for each Public Water System (PWS), for program WAQC130

LEGEND: A=Alpha N=Numeric
A/N=Alphanumeric PRE/0=
RJ=Right Justiry Precede
LJ=Left Justify Zero

CARD COL. FROM	CARD COL. TO	INPUT DOCUMENT NAME	DESCRIPTION	ADDITIONAL INSTRUCTIONS
			S = One Label for this PWS	
			A = One Label for each Bateriological	
			Sample scheduled for the PWS	
			P = The number of Labels for this PWS,	
			specified in card column 14-15.	
			If 'P' is entered, a number between	
			01 and 99 inclusive must be entered	
			in cc 14-15.	
			If Mailing Labels are not desired,	
			enter an 'N' or leave blank. If not	
			entered, a default of 'N' is assumed.	
14	15	Bacterio-	If 'P' was entered in Card Column 13	N
		logical	and a specific number of Mailing	
		Mailing	Labels for the Bacteriological samples	
		Labels	scheduled for this PWS is desired,	
		Number	enter that number here.	
			If entered, must be within the range	
			of 01 through 99 inclusive, and card	

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MODEL STATE INFORMATION SYSTEM
DATA ENTRY INSTRUCTIONS

SOURCE DOCUMENT NAME: Sampling Scheduling Input Form	**EXHIBIT:** WAQC.124
PURPOSE: To determine what sample schedule output is to be produced for each Public Water System (PWS), for Program WAQC130.	**LEGEND:** A=Alpha N=Numeric A/N=Alphanumeric PRE/0= RJ=Right Justify Preced LJ=Left Justify Zero

CARD COL. FROM	CARD COL. TO	INPUT DOCUMENT NAME	DESCRIPTION	ADDITIONAL INSTRUCTIONS
			column 13 must be 'P'. If a specific number is not desired or card column 13 is not 'P', leave blank.	
16	16	Reschedule Chemicals	Enter a'Y' if the Chemical samples scheduled for this PWS during the latest scheduling processing are to be scheduled again during this scheduling job run. If rescheduling of chemical samples for this PWS is not desired, enter an 'N' or leave blank. If not entered, a default of 'N' is assumed.	A
17	17	Reschedule Radio-Nuclides	Enter a 'Y' if the Natural or Man-Made Radionuclide samples scheduled for This PWS during the latest scheduling processing are to be scheduled again during this scheduling job run. If rescheduling of Radionuclide samples for this PWS is not desired, enter an 'N' or leave blank. If not entered, a default of 'N' is assumed.	A

III. User Defined Selection of Information

The user must have the ability to select certain types of records for examination and reporting. MSIS provides this ability in special program modules through the use of two processing options: SEL1 and SEL2. The use of these options is standard throughout MSIS, although each subsystem which allows these options has its own input forms to use. (See Exhibits and Data Entry Instructions for full details on each.)

First, it is necessary to become familiar with the SEL1 and SEL2 forms and the processing logic they represent. (See figures III.1 and III.2) The example of the SEL1 form actually represents thirteen cards, one for each line, where the SEL2 form represents only one card. They are tied together logically by the Data Element Logic ID Number, columns 30-31 in the SEL1 card, and the pre-printed numbers on the SEL2 form. A maximum of thirty-five (35) SEL1 cards are allowed, and each must have a unique Data Element Logic ID Number from 01-35. If there is any duplication, the program will not run. A maximum of thirty-five (35) SEL2 cards is also allowed. The logical relationship of the multiple SEL2 cards is what is termed an "OR" condition. The logical relationship across one SEL2 card is termed an "AND" condition. These relational conditions will be further explained as examples are given.

When filling out the SEL1 form, make sure that the Data Element Comparative Value is left justified, i.e., start with the left-most block. As a general rule, use no more blocks than the maximum length of the data element as it appears on file. There are, however, several exceptions to that rule. Dates should be entered as a six position field in the format MMDDYY where MM = month, DD = day, and YY = the last two digits of the year. Dates appear on the file as five position Julian format dates but the programs will automatically convert the format of your input date to make the comparison. Turbidity units and air temperature allow for one decimal position. Maximum contaminant levels (MCL's) allow up to 15 positions: 5 whole numbers, a decimal point and nine decimal places. The decimal should be coded as part of the value in the Comparative Value. In either case, the programs will be able to make any adjustments necessary to conform to the data which is on file. Again, it must be noted that the Logic ID Number must be unique, no two SEL1 cards can have the same number.

On the SEL2 form, use only the Relational Symbols that are defined at the heading of the form. Any other symbols will stop the run of the program.

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MODEL STATE INFORMATION SYSTEM
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SELECTION FORM - DEFINITION OF DATA ELEMENTS

CARD ID	DATA ELEMENT MNEMONIC NAME	DATA ELEMENT COMPARATIVE VALUE	DATA ELEMENT LOGIC ID NO.
S E L 1 1-4	☐☐☐☐☐☐☐☐☐☐ 5-14	☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐ 15-29	☐☐ 30-31
DUP 1 - 4	☐☐☐☐☐☐☐☐☐☐	☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐	☐☐
.	☐☐☐☐☐☐☐☐☐☐	☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐	☐☐
.	☐☐☐☐☐☐☐☐☐☐	☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐	☐☐
.	☐☐☐☐☐☐☐☐☐☐	☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐	☐☐
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Fig. III.1

MODEL STATE INFORMATION SYSTEM

PUBLIC WATER SYSTEM INVENTORY SUBSYSTEM

SELECTION FORM - DEFINITION OF LOGIC FOR SELECTION

RELATION SYMBOLS: LT = LESS THAN
EQ = EQUAL
GT = GREATER THAN
NL = NOT LESS THAN
NG = NOT GREATER THAN
NX = NOT EXISTS (EMPTY)

CARD ID	DATA ELEMENT LOGIC ID NO.	RELATION SYMBOL	DATA ELEMENT LOGIC ID NO.	RELATION SYMBOL	DATA ELEMENT LOGIC ID NO.	RELATION SYMBOL	DATA ELEMENT LOGIC ID NO.	RELATION SYMBOL
S E L 2 1-4	01	☐☐ 5-6	02	☐☐ 7-8	03	☐☐ 9-10	04	☐☐ 11-12
	05	☐☐ 13-14	06	☐☐ 15-16	07	☐☐ 17-18	08	☐☐ 19-20
	09	☐☐ 21-22	10	☐☐ 23-24	11	☐☐ 25-26	12	☐☐ 27-28
	13	☐☐ 29-30	14	☐☐ 31-32	15	☐☐ 33-34	16	☐☐ 35-36
	17	☐☐ 37-38	18	☐☐ 39-40	19	☐☐ 41-42	20	☐☐ 43-44
	21	☐☐ 45-46	22	☐☐ 47-48	23	☐☐ 49-50	24	☐☐ 51-52
	25	☐☐ 53-54	26	☐☐ 55-56	27	☐☐ 57-58	28	☐☐ 59-60
	29	☐☐ 61-62	30	☐☐ 63-64	31	☐☐ 65-66	32	☐☐ 67-68
	33	☐☐ 69-70	34	☐☐ 71-72	35	☐☐ 73-74		

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suspension, and legal action (lawsuits). This data can then

As a simple example, look at figures III.3 and III.4. The example desires to select all community Public Water Systems (PWS's) in the Cincinnati area. The plant type is coded in the Data Element Mnemonic Name and the Comparative Value of "C" is coded. This information was found in the Data Element Dictionary. The relational logic as coded would be: select all records which have a plant type equal to "C" AND an area city equal to "CINCINNATI". Remember the AND condition occurs across the SEL2 card. Each Relation Symbol corresponds to the Logic ID Number as recorded in the SEL1 cards.

By adding another line to SEL1 as in figure III.5 and an additional SEL2 form, figure III.6, the relational logic has been altered to be: select all records which have a plant type equal to "C" AND an area city equal to "CINCINNATI" OR "TOLEDO".

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MODEL STATE INFORMATION SYSTEM

PUBLIC WATER SYSTEM INVENTORY SUBSYSTEM

SELECTION FORM - DEFINITION OF DATA ELEMENTS

CARD ID	DATA ELEMENT MNEMONIC NAME	DATA ELEMENT COMPARATIVE VALUE	DATA ELEMENT LOGIC ID NO.
SEL1 1-4	PW-PL-TYPE 5-14	C 15-29	01 30-31
DUP 1 - 4	PW-PL-ACTY	CINCINNATI	02
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Fig. III.3

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PUBLIC WATER SYSTEM INVENTORY SUBSYSTEM

SELECTION FORM - DEFINITION OF LOGIC FOR SELECTION

RELATION SYMBOLS: LT = LESS THAN GT = GREATER THAN NG = NOT GREATER THAN
EQ = EQUAL NL = NOT LESS THAN NX = NOT EXISTS (EMPTY)

CARD ID	DATA ELEMENT LOGIC ID NO.	RELATION SYMBOL	DATA ELEMENT LOGIC ID NO.	RELATION SYMBOL	DATA ELEMENT LOGIC ID NO.	RELATION SYMBOL	DATA ELEMENT LOGIC ID NO.	RELATION SYMBOL
S E L 2 1-4	01	E Q 5-6	02	E Q 7-8	03	☐☐ 9-10	04	☐☐ 11-12
	05	☐☐ 13-14	06	☐☐ 15-16	07	☐☐ 17-18	08	☐☐ 19-20
	09	☐☐ 21-22	10	☐☐ 23-24	11	☐☐ 25-26	12	☐☐ 27-28
	13	☐☐ 29-30	14	☐☐ 31-32	15	☐☐ 33-34	16	☐☐ 35-36
	17	☐☐ 37-38	18	☐☐ 39-40	19	☐☐ 41-42	20	☐☐ 43-44
	21	☐☐ 45-46	22	☐☐ 47-48	23	☐☐ 49-50	24	☐☐ 51-52
	25	☐☐ 53-54	26	☐☐ 55-56	27	☐☐ 57-58	28	☐☐ 59-60
	29	☐☐ 61-62	30	☐☐ 63-64	31	☐☐ 65-66	32	☐☐ 67-68
	33	☐☐ 69-70	34	☐☐ 71-72	35	☐☐ 73-74		

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Fig. III.4

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SELECTION FORM - DEFINITION OF DATA ELEMENTS

CARD ID 1-4	DATA ELEMENT MNEMONIC NAME 5-14	DATA ELEMENT COMPARATIVE VALUE 15-29	DATA ELEMENT LOGIC ID NO. 30-31
SEL1	PW-PL-TYPE	C	01
DUP 1 - 4	PW-PL-ACTY	CINCINNATI	02
.	PW-PL-ACTY	TOLEDO	03
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Fig. III.5

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PUBLIC WATER SYSTEM INVENTORY SUBSYSTEM

SELECTION FORM - DEFINITION OF LOGIC FOR SELECTION

RELATION SYMBOLS: LT = LESS THAN
EQ = EQUAL
GT = GREATER THAN
NL = NOT LESS THAN
NG = NOT GREATER THAN
NX = NOT EXISTS(EMPTY)

CARD ID	DATA ELEMENT LOGIC ID NO.	RELATION SYMBOL	DATA ELEMENT LOGIC ID NO.	RELATION SYMBOL	DATA ELEMENT LOGIC ID NO.	RELATION SYMBOL	DATA ELEMENT LOGIC ID NO.	RELATION SYMBOL
S E L 2 1-4	01	E Q 5-6	02	☐☐ 7-8	03	E Q 9-10	04	☐☐ 11-12
	05	☐☐ 13-14	06	☐☐ 15-16	07	☐☐ 17-18	08	☐☐ 19-20
	09	☐☐ 21-22	10	☐☐ 23-24	11	☐☐ 25-26	12	☐☐ 27-28
	13	☐☐ 29-30	14	☐☐ 31-32	15	☐☐ 33-34	16	☐☐ 35-36
	17	☐☐ 37-38	18	☐☐ 39-40	19	☐☐ 41-42	20	☐☐ 43-44
	21	☐☐ 45-46	22	☐☐ 47-48	23	☐☐ 49-50	24	☐☐ 51-52
	25	☐☐ 53-54	26	☐☐ 55-56	27	☐☐ 57-58	28	☐☐ 59-60
	29	☐☐ 61-62	30	☐☐ 63-64	31	☐☐ 65-66	32	☐☐ 67-68
	33	☐☐ 69-70	34	☐☐ 71-72	35	☐☐ 73-74		

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Fig. III.6

It should be noted that when using the "NX" relation symbol, care should be taken when coding the Comparative Value field. If a field is considered non-existant and is an alphanumeric field, its initialized value will be blanks. So the Comparative Value should be left blank. (See figure III.7, Logic ID Number 01). Likewise, if the field is numeric, zeros should be coded in the Comparative Value. (See figure III.7, Logic ID Number 02). The type of field can be determined from the Data Element Dictionary. If the "Data Type" field contains a "A/N", that means that the field is alphanumeric. If it contains an "N", it is a numeric field. The relational logic for this example is: select all records for which the owner name is non-existant AND the last survey date is non-existant.

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PUBLIC WATER SYSTEM INVENTORY SUBSYSTEM

SELECTION FORM - DEFINITION OF DATA ELEMENTS

CARD ID	DATA ELEMENT MNEMONIC NAME	DATA ELEMENT COMPARATIVE VALUE	DATA ELEMENT LOGIC ID NO.
SEL1 1-4	PW-OWNA 5-14	15-29	01 30-31
DUP 1 - 4	PW-PL-SURV	000000	02
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Fig III 7

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MODEL STATE INFORMATION SYSTEM

PUBLIC WATER SYSTEM INVENTORY SUBSYSTEM

SELECTION FORM - DEFINITION OF LOGIC FOR SELECTION

RELATION SYMBOLS: LT = LESS THAN GT = GREATER THAN NG = NOT GREATER THAN
EQ = EQUAL NL = NOT LESS THAN NX = NOT EXISTS (EMPTY)

CARD ID	DATA ELEMENT LOGIC ID NO.	RELATION SYMBOL	DATA ELEMENT LOGIC ID NO.	RELATION SYMBOL	DATA ELEMENT LOGIC ID NO.	RELATION SYMBOL	DATA ELEMENT LOGIC ID NO.	RELATION SYMBOL
S E L 2 1-4	01	N X 5-6	02	N X 7-8	03	☐☐ 9-10	04	☐☐ 11-12
	05	☐☐ 13-14	06	☐☐ 15-16	07	☐☐ 17-18	08	☐☐ 19-20
	09	☐☐ 21-22	10	☐☐ 23-24	11	☐☐ 25-26	12	☐☐ 27-28
	13	☐☐ 29-30	14	☐☐ 31-32	15	☐☐ 33-34	16	☐☐ 35-36
	17	☐☐ 37-38	18	☐☐ 39-40	19	☐☐ 41-42	20	☐☐ 43-44
	21	☐☐ 45-46	22	☐☐ 47-48	23	☐☐ 49-50	24	☐☐ 51-52
	25	☐☐ 53-54	26	☐☐ 55-56	27	☐☐ 57-58	28	☐☐ 59-60
	29	☐☐ 61-62	30	☐☐ 63-64	31	☐☐ 65-66	32	☐☐ 67-68
	33	☐☐ 69-70	34	☐☐ 71-72	35	☐☐ 73-74		

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Fig III.8

Now for a more complex example. First look at figures III.9 through III.12. See if you can determine what the relational logic is. Remember that an "AND" relation goes across one SEL2 card and an "OR" relation goes from one SEL2 card to the next. The relational logic is: select all records for which the PWS ID is "greater than" 0000001 AND the emergency capacity is "less than" 2,000,000 gallons, OR the plant type is "equal" to "N" for non-community AND the emergency capacity is "greater than" 1,000 gallons, OR the emergency capacity is "less than" 2,000,000 gallons AND the last survey date is "less than" or previous to 010177 AND the plant type is "equal" to "N" for non-community.

There are several situations of note in this example. First, see that the emergency capacity appears twice on the SEL1 form. This is a valid situation because two different Comparative Values are being used in different logic sequences. Second, see that two of the logic ID Numbers have been used twice in different logic sequences. This too is a valid situation because of the use of the OR condition between SEL2 cards. Third, note that we have three entirely independent conditions, any of which will cause the record to be selected if the condition is met.

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MODEL STATE INFORMATION SYSTEM

PUBLIC WATER SYSTEM INVENTORY SUBSYSTEM

SELECTION FORM - DEFINITION OF DATA ELEMENTS

CARD ID	DATA ELEMENT MNEMONIC NAME	DATA ELEMENT COMPARATIVE VALUE	DATA ELEMENT LOGIC ID NO.
SEL1	PW-ID	0000001	01
1-4	5-14	15-29	30-31
DUP 1 - 4	PW-PL-EMER	00C20000000	02
.	PW-PL-TYPE	N	03
.	PW-PL-EMER	000000100	04
.	PW-PL-SURV	010177	05
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Fig III.9

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SELECTION FORM - DEFINITION OF LOGIC FOR SELECTION

RELATION SYMBOLS: LT = LESS THAN GT = GREATER THAN NG = NOT GREATER THAN
EQ = EQUAL NL = NOT LESS THAN NX = NOT EXISTS(EMPTY)

CARD ID	DATA ELEMENT LOGIC ID NO.	RELATION SYMBOL	DATA ELEMENT LOGIC ID NO.	RELATION SYMBOL	DATA ELEMENT LOGIC ID NO.	RELATION SYMBOL	DATA ELEMENT LOGIC ID NO.	RELATION SYMBOL
SEL2 1-4	01	GT 5-6	02	LT 7-8	03	☐☐ 9-10	04	☐☐ 11-12
	05	☐☐ 13-14	06	☐☐ 15-16	07	☐☐ 17-18	08	☐☐ 19-20
	09	☐☐ 21-22	10	☐☐ 23-24	11	☐☐ 25-26	12	☐☐ 27-28
	13	☐☐ 29-30	14	☐☐ 31-32	15	☐☐ 33-34	16	☐☐ 35-36
	17	☐☐ 37-38	18	☐☐ 39-40	19	☐☐ 41-42	20	☐☐ 43-44
	21	☐☐ 45-46	22	☐☐ 47-48	23	☐☐ 49-50	24	☐☐ 51-52
	25	☐☐ 53-54	26	☐☐ 55-56	27	☐☐ 57-58	28	☐☐ 59-60
	29	☐☐ 61-62	30	☐☐ 63-64	31	☐☐ 65-66	32	☐☐ 67-68
	33	☐☐ 69-70	34	☐☐ 71-72	35	☐☐ 73-74		

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Fig. III.10

MODEL STATE INFORMATION SYSTEM
PUBLIC WATER SYSTEM INVENTORY SUBSYSTEM

SELECTION FORM - DEFINITION OF LOGIC FOR SELECTION

RELATION SYMBOLS:
LT = LESS THAN
EQ = EQUAL
GT = GREATER THAN
NL = NOT LESS THAN
NG = NOT GREATER THAN
NX = NOT EXISTS (EMPTY)

CARD ID	DATA ELEMENT LOGIC ID NO.	RELATION SYMBOL	DATA ELEMENT LOGIC ID NO.	RELATION SYMBOL	DATA ELEMENT LOGIC ID NO.	RELATION SYMBOL	DATA ELEMENT LOGIC ID NO.	RELATION SYMBOL
SEL2 1-4	01	☐☐ 5-6	02	☐☐ 7-8	03	EQ 9-10	04	GT 11-12
	05	☐☐ 13-14	06	☐☐ 15-16	07	☐☐ 17-18	08	☐☐ 19-20
	09	☐☐ 21-22	10	☐☐ 23-24	11	☐☐ 25-26	12	☐☐ 27-28
	13	☐☐ 29-30	14	☐☐ 31-32	15	☐☐ 33-34	16	☐☐ 35-36
	17	☐☐ 37-38	18	☐☐ 39-40	19	☐☐ 41-42	20	☐☐ 43-44
	21	☐☐ 45-46	22	☐☐ 47-48	23	☐☐ 49-50	24	☐☐ 51-52
	25	☐☐ 53-54	26	☐☐ 55-56	27	☐☐ 57-58	28	☐☐ 59-60
	29	☐☐ 61-62	30	☐☐ 63-64	31	☐☐ 65-66	32	☐☐ 67-68
	33	☐☐ 69-70	34	☐☐ 71-72	35	☐☐ 73-74		

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Fig III.11

PWSI020,080 **MODEL STATE INFORMATION SYSTEM** PWSI.100

PUBLIC WATER SYSTEM INVENTORY SUBSYSTEM

SELECTION FORM - DEFINITION OF LOGIC FOR SELECTION

RELATION SYMBOLS: LT = LESS THAN GT = GREATER THAN NG = NOT GREATER THAN
EQ = EQUAL NL = NOT LESS THAN NX = NOT EXISTS (EMPTY)

CARD ID	DATA ELEMENT LOGIC ID NO.	RELATION SYMBOL	DATA ELEMENT LOGIC ID NO.	RELATION SYMBOL	DATA ELEMENT LOGIC ID NO.	RELATION SYMBOL	DATA ELEMENT LOGIC ID NO.	RELATION SYMBOL
SEL2 1-4	01	☐☐ 5-6	02	LT 7-8	03	EQ 9-10	04	☐☐ 11-12
	05	LT 13-14	06	☐☐ 15-16	07	☐☐ 17-18	08	☐☐ 19-20
	09	☐☐ 21-22	10	☐☐ 23-24	11	☐☐ 25-26	12	☐☐ 27-28
	13	☐☐ 29-30	14	☐☐ 31-32	15	☐☐ 33-34	16	☐☐ 35-36
	17	☐☐ 37-38	18	☐☐ 39-40	19	☐☐ 41-42	20	☐☐ 43-44
	21	☐☐ 45-46	22	☐☐ 47-48	23	☐☐ 49-50	24	☐☐ 51-52
	25	☐☐ 53-54	26	☐☐ 55-56	27	☐☐ 57-58	28	☐☐ 59-60
	29	☐☐ 61-62	30	☐☐ 63-64	31	☐☐ 65-66	32	☐☐ 67-68
	33	☐☐ 69-70	34	☐☐ 71-72	35	☐☐ 73-74		

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Fig III.12

As a final example, consider the situation of selecting a range of values. Under normal circumstances, the field would be entered twice in the mnemonic name columns and an upper and lower range entered in the comparative values with the appropriate relational symbols used on the SEL2 card. However, certain problems arise when you are working with fields that have multiple occurrences within a record, such as the Variances and Exemptions Contaminant ID does within the PWF record.

First, let us group the following figures to illustrate the different situations that may arise. Group figures III.13 and III.14 as group one, figures III.13 and III.15 as group two, and III.13 and III.16 as group three. Then, let us use the following value groups for the contaminant ID fields which occur a possibility of four times in each PWF record:

Value Group One	Value Group Two	Value Group Three
3010	4000	3010
4000	4005	4005
4010	4010	4010
4020	4020	4020

Now, using the group one figures as an example, let us demonstrate what will happen with the three value groups. First, with Value Group One, the record would be selected because there is a value "equal" to 4000 AND there is a value "equal" to 4010. The record for Value Group Two would also be selected, and for the same reason. However, with Value Group Three, the record would not be selected because there is no value 4000.

Next, look at the group two figures. Here we are looking for an outside range of numbers. The record for Value Group One would be selected because there is a value "less than" 4000 AND there is a value "greater than" 4010. With Value Group Two, the record would not be selected because there is no value "less than" 4000. Using Value Group Three, the record would be selected because both conditions would be met.

Finally, look at figure group three. Here, we are looking for an inside range of numbers. And this is where our problem lies. With Value Group One, the record would be selected. But look closer at the results. True, there are values "greater than" 4000, AND there are values "less than" 4010. But there is actually no value between 4000 and 4010. With Value Groups Two and Three, there are values that fall within the range. But the entire situation is victim to circumstance. Therefore, the results obtained when selecting a data element based on an inside range that occurs more than once is questionable.

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PUBLIC WATER SYSTEM INVENTORY SUBSYSTEM

SELECTION FORM - DEFINITION OF DATA ELEMENTS

CARD ID	DATA ELEMENT MNEMONIC NAME	DATA ELEMENT COMPARATIVE VALUE	DATA ELEMENT LOGIC ID NO.
SEL1 1-4	PW-VE-CTAM 5-14	4000 15-29	01 30-31
DUP 1 - 4	PW-VE-CTAM	4010	02
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Fig III.13

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SELECTION FORM - DEFINITION OF LOGIC FOR SELECTION

RELATION SYMBOLS: LT = LESS THAN
EQ = EQUAL
GT = GREATER THAN
NL = NOT LESS THAN
NG = NOT GREATER THA
NX = NOT EXISTS(EMPT

CARD ID	DATA ELEMENT LOGIC ID NO.	RELATION SYMBOL	DATA ELEMENT LOGIC ID NO.	RELATION SYMBOL	DATA ELEMENT LOGIC ID NO.	RELATION SYMBOL	DATA ELEMENT LOGIC ID NO.	RELATI SYMBOL
S E L 2 1-4	01	E Q 5-6	02	E Q 7-8	03	☐☐ 9-10	04	☐☐ 11-1
	05	☐☐ 13-14	06	☐☐ 15-16	07	☐☐ 17-18	08	☐☐ 19-2
	09	☐☐ 21-22	10	☐☐ 23-24	11	☐☐ 25-26	12	☐☐ 27-2
	13	☐☐ 29-30	14	☐☐ 31-32	15	☐☐ 33-34	16	☐☐ 35-36
	17	☐☐ 37-38	18	☐☐ 39-40	19	☐☐ 41-42	20	☐☐ 43-44
	21	☐☐ 45-46	22	☐☐ 47-48	23	☐☐ 49-50	24	☐☐ 51-52
	25	☐☐ 53-54	26	☐☐ 55-56	27	☐☐ 57-58	28	☐☐ 59-60
	29	☐☐ 61-62	30	☐☐ 63-64	31	☐☐ 65-66	32	☐☐ 67-68
	33	☐☐ 69-70	34	☐☐ 71-72	35	☐☐ 73-74		

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Fig. III.14

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PUBLIC WATER SYSTEM INVENTORY SUBSYSTEM

SELECTION FORM - DEFINITION OF LOGIC FOR SELECTION

RELATION SYMBOLS: LT = LESS THAN
EQ = EQUAL
GT = GREATER THAN
NL = NOT LESS THAN
NG = NOT GREATER THAN
NX = NOT EXISTS (EMPTY

CARD ID	DATA ELEMENT LOGIC ID NO.	RELATION SYMBOL	DATA ELEMENT LOGIC ID NO.	RELATION SYMBOL	DATA ELEMENT LOGIC ID NO.	RELATION SYMBOL	DATA ELEMENT LOGIC ID NO.	RELATIO SYMBOL
SEL2 1-4	01	LT 5-6	02	GT 7-8	03	☐☐ 9-10	04	☐☐ 11-12
	05	☐☐ 13-14	06	☐☐ 15-16	07	☐☐ 17-18	08	☐☐ 19-20
	09	☐☐ 21-22	10	☐☐ 23-24	11	☐☐ 25-26	12	☐☐ 27-28
	13	☐☐ 29-30	14	☐☐ 31-32	15	☐☐ 33-34	16	☐☐ 35-36
	17	☐☐ 37-38	18	☐☐ 39-40	19	☐☐ 41-42	20	☐☐ 43-44
	21	☐☐ 45-46	22	☐☐ 47-48	23	☐☐ 49-50	24	☐☐ 51-52
	25	☐☐ 53-54	26	☐☐ 55-56	27	☐☐ 57-58	28	☐☐ 59-60
	29	☐☐ 61-62	30	☐☐ 63-64	31	☐☐ 65-66	32	☐☐ 67-68
	33	☐☐ 69-70	34	☐☐ 71-72	35	☐☐ 73-74		

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Fig. III.15

PWSI020.080 PWSI.108

MODEL STATE INFORMATION SYSTEM
PUBLIC WATER SYSTEM INVENTORY SUBSYSTEM

SELECTION FORM - DEFINITION OF LOGIC FOR SELECTION

RELATION SYMBOLS: LT = LESS THAN
EQ = EQUAL
GT = GREATER THAN
NL = NOT LESS THAN
NG = NOT GREATER THAN
NX = NOT EXISTS(EMPTY

CARD ID	DATA ELEMENT LOGIC ID NO.	RELATION SYMBOL	DATA ELEMENT LOGIC ID NO.	RELATION SYMBOL	DATA ELEMENT LOGIC ID NO.	RELATION SYMBOL	DATA ELEMENT LOGIC ID NO.	RELATIO SYMBOL
SEL2 1-4	01	GT 5-6	02	LT 7-8	03	☐☐ 9-10	04	☐☐ 11-12
	05	☐☐ 13-14	06	☐☐ 15-16	07	☐☐ 17-18	08	☐☐ 19-20
	09	☐☐ 21-22	10	☐☐ 23-24	11	☐☐ 25-26	12	☐☐ 27-28
	13	☐☐ 29-30	14	☐☐ 31-32	15	☐☐ 33-34	16	☐☐ 35-36
	17	☐☐ 37-38	18	☐☐ 39-40	19	☐☐ 41-42	20	☐☐ 43-44
	21	☐☐ 45-46	22	☐☐ 47-48	23	☐☐ 49-50	24	☐☐ 51-52
	25	☐☐ 53-54	26	☐☐ 55-56	27	☐☐ 57-58	28	☐☐ 59-60
	29	☐☐ 61-62	30	☐☐ 63-64	31	☐☐ 65-66	32	☐☐ 67-68
	33	☐☐ 69-70	34	☐☐ 71-72	35	☐☐ 73-74		

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Fig. III.16

In summary, then, follow these basic rules when filling out the SEL1 and SEL2 forms:

Data Element Mnemonic Name must be spelled correctly Refer to Data Element Dictionary or Record Description for correct spelling

Comparative Value must be left justified and not longer than the maximum data length as recorded in the Data Element Dictionary with the exception of Turbidity Units, Air Temperature, MCL's which must have their decimal points coded, and dates which will be coded as six digits

Data Element Logic ID Number must be unique

Use only the six relation symbols as defined at the heading of the SEL2 form

"AND" logical relationship exists across the SEL2 card

"OR" logical relationship exists from one SEL2 card to the next

IV. User Defined Report Sequencing

Many of the reports produced by MSIS have a processing option called SORT. It gives the user the option of sequencing a report in a manner other than the natural sequence of the file from which the information is being obtained. If a report contains such an option, there will be a standard input form associated with that report which the user must fill out and submit with the job request in order to have the report in the requested sequence. (See Exhibits and Data Entry Instructions for full details on each report.)

Computer sorts are performed using a "sort key". This key can be defined as a body of information, in order of decreasing importance, used to sequence a greater body of information. The various data elements contained within that sort key are ordered in importance, major to minor, by the user. Therefore, the major key appears first within the sort key followed by fields, in their order of decreasing importance, down to the minor key. This terminology is important to understand in learning how to fill out the input form required to request a resequencing of a report.

Secondly, it is important to understand that the sorts are limited in such a way that the information contained in the sort key cannot exceed thirty (30) characters in their combined lengths. Therefore, when a user is filling out one of the input forms, he must use either a record description or the Data Element Dictionary (DED) to determine the lengths and mnemonic names of the data elements with which he is working. There is one exception to the rule of combining data lengths; if a data element contains more than fifteen (15) characters, only the first fifteen characters will be used in creating the sort key.

All of the input forms for the various reports have the same general format. When filling out the form, order the sort key fields from major to minor significance down the page starting with the number 01. This is a must because the column labeled "Sort Priority" will be used by the computer program to determine major (01) to minor (maximum of 30) significance. The user can fill out a maximum of six input forms per report, of course, as long as the length of the sort key requested is less than 31.

Additionally, each data element can be ordered in either ascending or descending sequence. When working with a data element that could potentially be alphabetic or numeric, it should also be noted that with IBM hardware, numbers are considered "higher" than alphabetic characters. Therefore a number would sort higher than a letter. With many other companies, however, the reverse is true. If your hardware is other than IBM, it is recommended that you ask your programming staff about the "collating sequence" of your

MODEL STATE INFORMATION SYSTEM
STANDARD PROCESSING SUBSYSTEM

STANDARD HISTORY FILE SELECTION

SORT OPTIONS FOR JOB ______________

CARD ID	SORT SEQUENCE	MNEMONIC NAME OF DATA ELEMENT	SORT MODE	
S O R T 1-4	☐☐ 5-6	☐☐☐☐☐☐☐☐☐☐ 7-16	☐ 17	A=ASCENDING D=DESCENDING
	☐☐ 18-19	☐☐☐☐☐☐☐☐☐☐ 20-29	☐ 30	A=ASCENDING D=DESCENDING
	☐☐ 31-32	☐☐☐☐☐☐☐☐☐☐ 33-42	☐ 43	A=ASCENDING D=DESCENDING
	☐☐ 44-45	☐☐☐☐☐☐☐☐☐☐ 46-55	☐ 56	A=ASCENDING D=DESCENDING
	☐☐ 57-58	☐☐☐☐☐☐☐☐☐☐ 59-68	☐ 69	A=ASCENDING D=DESCENDING

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Fig. IV.1

machine so that you can make the proper decision when ordering your data.

The following table should be useful in helping the user determine if he would like a report from a certain file to be sequenced in a manner other than its natural sequence.

FILE NAME	NATURAL SEQUENCE
Enforcement Actions File (EAF)	Case ID
Operator & Mailing File (OMF)	Addressee ID
Public History File (PHF)	PWS-ID
Periodic Sample File (PSF)	PWS-ID; Contaminant ID; Location Code; Sample type, date, time and key; Record Type
Public Water File (PWF)	PWS-ID
Regulations File (RGF)	Contaminant ID, Regulation Level
Sample Analysis File (SAF)	PWS-ID; Contaminant ID; location Code; Sample type, date, time and key; Record Type
Standard History File (SHF)	File ID, Record ID, Data Element Catalogue Number, Current Update Date
Variances and Exemptions File (VEF)	Variances and Exemptions ID
Violations File (VIF)	Violation ID

Note: the above files are not a complete list of permanent files, but the only permanent files for which a sort may be done.